

**Interested Party Reference number: 20045900**

**Gatwick Airport Northern Runway Project – Development Consent Order (DCO)**

**Written Representations for Deadline 12<sup>th</sup> March**

**Gatwick Area Conservation Campaign (GACC)**

**12th March 2024**

Dear Examining Authority

Please find our written submissions for the 12<sup>th</sup> March deadline..

Yours faithfully,

Peter Barclay

**Chair, Gatwick Area Conservation Campaign**

## Contents

The GACC written representation is set out here in the following sections. This is preceded by a short summary (less than 1500 words) highlighting key issues. Sections with greater than 1500 words also start with a short section summary of key points made.

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## Section 1. Overall Summary

1. **Assess worse case for environmental impact of surface transport, noise, air pollution and climate change.**
  - ! Increase from 40.9m in 2023 to 80.2m in 2047 is an increase of around 39 million passengers per annum (mppa). Gatwick Airport Ltd (GAL) has compared environmental impacts against a future baseline of 67.2 mppa in 2047, just 1/3 of the increase from 2023.
  - ! Environmental Assessment guidance is that assessment should be against the realistic worse case. This has not been done.
  - ! The modelling, scenarios and actual impacts should be compared to the current situation and future case without any increase in flights or passengers so the full impact of Gatwick expansion is seen.
  
2. **Future environmental and local impacts should be no worse than now.**
  - ! GAL should define and model transport scenarios with no car growth and no worse crowding on rail network (noting luggage space too). This would mean new train services to/from airport and potentially between London and the South Coast elsewhere.
  - ! Local traffic congestion and parking impacts in and around Gatwick should not be worse.
  - ! As well as traffic there should be no increased impacts on air pollution, noise, flood impact, water neutrality.
  
3. **The DCO has highlighted that in some areas existing impacts are already unacceptable.** These impacts should be accepted as such and reduced and/or eliminated.
  - ! No night flights
  - ! Stronger noise limits and mitigation scheme.
  - ! Address existing poor quality of River Mole, including Gatwick Airport's potential contribution to sewage overflow incidents and downstream flooding.
  
4. **Gatwick has not taken seriously its impact on the environment and must sign a new Section 106 agreement, agreeing conditions to limit all these impacts,** regardless of whether the airport is expanded or not.
  - ! This should limit local road congestion and ensure surface transport modal shift, public and active transport investment, stronger curbs on noise, ban on night flights, air pollution measures, climate impact limits, including from flights.
  
5. **Climate change is a significant impact, and should be addressed.**
  - ! Gatwick must take responsibility for the emissions of flights from the airport in considering both its current and proposed future climate impact.
  - ! Increasing Gatwick to the size of Heathrow would make it as big as the UK's single largest climate polluter. GAL's claim that climate impact is not significant is simply not true.
  - ! There is a climate emergency. Aviation must play its part in reducing carbon emissions. This must include constraining demand at the airport level or

efficiency savings and tax breaks will continue to drive growth. The airport's expansion should not be supported on climate grounds alone.

**6. Comments on second round in hearings.**

- ! The Open Floor Hearing is proposed on Thursday 2<sup>nd</sup> May. Should an election be called on that day, and in any case should be shifted as it clashes with local and mayoral elections.
- ! The duration for ISH7 on May 1st 2024 may not be sufficient to cover all environmental issues. It is assumed this would be separate from time to follow up on issues covered already (e.g. transport, noise)
- ! There should be time for follow-up Issue Specific Hearings on the topics covered from 29th February to 6th March.

**7. Dated national aviation policy**

The Secretary of State should accept that the Aviation National Policy Statement (ANPS, 2018) and Making Better Use of Existing Runways policy (2018) is now out-of-date, specifically with respect to climate change. This should be updated before the Secretary of State makes the decision.

## Section 2. The Case for Development, Economic Assessment and Need

### 2.1 Summary

#### 2.1.1 Economic Assessment

1. GACC challenges the economic assessment made by GAL. This submission includes concerns raised by New Economics Foundation in their relevant representation. GACC believe that the economic benefits are overstated by the applicant, and the economic and environmental downsides are understated. When the relevant scheme costs, benefits, their balance of equity, and the long-term societal risks are taken into account, the scheme's overall balance is negative and entails unreasonable levels of risk to local, national and international wellbeing. Many of the arguments set out here are supported by evidence set out in NEF's recent report titled *Losing Altitude: The Economics of Air Transport in Great Britain*.

#### 2.1.2 Needs Case

2. The ANPS (Airports National Policy Statement, 2018) requires airports seeking to expand (other than Heathrow) to demonstrate sufficient need, additional to (or different from) that met by provision of the Northwest Runway at *Heathrow*. Gatwick has not done this.

3. Gatwick should also provide the data and assessment to justify the need for increased use of its existing runway above 2019 levels, without development of the Northern runway. This should be contrasted with historic growth rates of flights and passengers (including allowance for Covid impacts), global economic trends, increasing awareness and need for legislation to limit aviation's climate impacts and changes in how international business operates. It is unlikely that any additional capacity or the Northern Runway will ever be needed.

4. The future baseline currently used for comparison in the DCO itself represents a massive increase in flights and passengers. GACC are not yet confident that Gatwick's future baseline air traffic movements and passenger volumes are achievable, or whether they are supported by sufficient physical infrastructure in the 'without project' (future baseline) case. All assessments, including the EIA, should assess the aggregate impacts associated with both increased use of the existing runway *and* those associated with the Northern Runway, so the overall impacts of Gatwick's planned growth can be clearly understood against the current level of flights and passengers using the airport.

### 2.2 Overstatement of Economic Benefits

## 2.2.1 Overstatement of business passenger numbers

5. Business travel accounts for c. 90% of total estimated user benefits (Reference: APP-251, Table 5.6.1 of Needs Case Appendix 1 – reproduced below).

**Table 5.6.1: total benefits to users and providers in the London aviation system (£ bn)**

<b>Total benefits to users and providers</b>	
Leisure passenger benefits	15.5
Business passenger benefits	134.6
<b>Total user benefits</b>	<b>150.1</b>
Airline benefits	-139.3
Change in airport revenues	2.2
<b>Total provider benefits</b>	<b>-137.1</b>
<b>Present value of benefits to users and providers</b>	<b>13.1</b>

Note: All values are in discounted 2010 real prices. Numbers may not sum due to rounding. International-to-international transfer passengers have been excluded from the passenger numbers and the surplus calculations. Passenger benefits refer to benefits from reduced fares.

Source: Oxera.

Source: APP-251

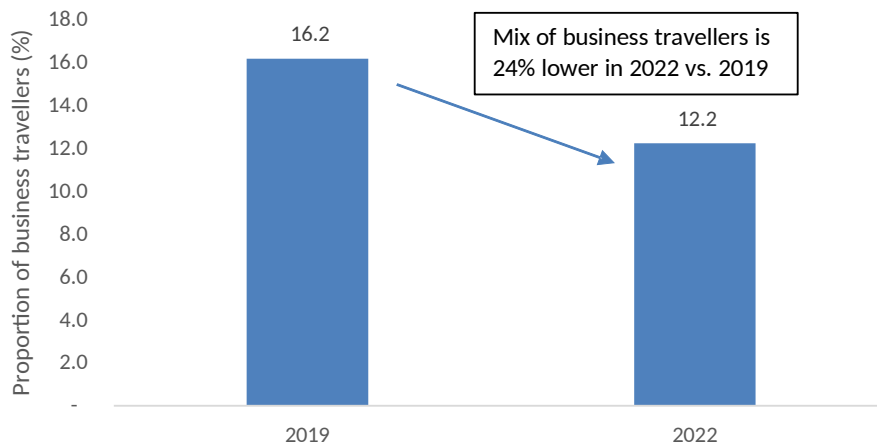
6. GACC reiterate concerns raised by NEF that the claimed level of benefit should be better evidenced as it does not appear credible. NEF (in their Losing Altitude report, 2023) note that nationally, business air passenger numbers peaked in 2006. A structural change took place following the 2007/08 financial crisis, which means total business passenger numbers have never recovered to the 2006 peak. There are strong indications that the Covid-19 pandemic has triggered a second structural shift, which has further reduced business demand. GAL's forecasts do not look credible.

7. This overstatement of passenger benefits due to business travel appears significantly overstated not least because it is based on the assumption "that the pandemic will not have an influence on passenger air traffic related to the expansion project in the long-run."<sup>1</sup>

8. However, the pandemic has hit business travel the hardest due to the adoption of homeworking and teleconferencing. CAA passenger survey data (see diagram below) shows that the mix of business passengers has reduced by about 24% from 2019 to 2022.

<sup>1</sup>APP-251, paragraph 3.5.3.

### Fewer business passengers post-COVID at Gatwick



Source: analysis of CAA passenger survey data, Table 3 (2022 and 2019)<sup>2</sup>  
See also details in the New Economics Foundation submission on this item.

9. The impact on business passengers has persisted beyond 2022. For example, IAG, the owner of British Airways, reported slower-than-expected rates of recovery in business travel, currently about 40% below 2019 levels. IAG notes that corporate bookings have “plateaued” since March 2023.<sup>3</sup>

10. GACC agree with NEF who question this overall figure as it appears to be considerably larger than the benefit figures estimated by the Department for Transport and Airports Commission in 2015, which were produced for a proposed much larger expansion of Gatwick Airport.

11. Therefore, GACC question that the user (passenger) benefits stated in this table appear overstated compared to earlier estimates by the Department of Transport (2017) and the Airports Commission, particularly the 90% of these user benefits that are estimated to be from business passengers. In addition, it is unclear when (or if) these business passengers will return to pre-COVID figures. Gatwick assumes a significant increase in business travel, whereas CAA surveys and IAG’s statements show a reduced share of business travel post-Covid: still less than the 2006 peak.

#### 2.2.2 Disaggregation of benefits arising to UK and non-UK residents

12. GACC support the submission by NEF that GAL’s assessment fails to disaggregate benefits, which arise to UK and non-UK residents. It is likely that a significant portion of

<sup>2</sup> <https://www.caa.co.uk/data-and-analysis/uk-aviation-market/consumer-research/departing-passenger-survey/passenger-survey-report-2019/> and <https://www.caa.co.uk/data-and-analysis/uk-aviation-market/consumer-research/departing-passenger-survey/passenger-survey-report-2022/>.

<sup>3</sup> <https://travelweekly.co.uk/news/air/business-travel-bookings-recovering-more-slowly-than-thought>

the scheme's claimed benefits arise to non-UK residents. The applicant's excuse for failing to complete this exercise, at footnote 54 of Need Case Appendix 1 (APP-251, p5-19), is not accepted. Disaggregation has been conducted in a variety of comparable instances. The UK government is clear in its 2022 *Flightpath for the Future* strategy document that airport expansion must deliver benefits "for the UK". Therefore, this approach overstates benefits, and is inconsistent with this UK government strategy.

13. Furthermore, if benefits to overseas residents have been included, all aspects associated with overseas residents should be included, which means the associated environmental costs (particularly via inbound flights) should also have been included.

### **2.2.3 Displacement of business travellers from other airports has no overall UK economic benefit**

14. GACC concur with NEF's submission, which questions why none of the new business passengers at Gatwick Airport that arise from this scheme are considered to be passengers displaced from other airports, instead of being assumed to be newly created. Again, this risks overstating the economic benefit of the scheme to the UK as a whole. While passengers travelling for business purposes increased at Gatwick Airport between 2006 and 2019, the overall numbers in the London Airport system did not. Business travellers shifted from Heathrow to airports such as Gatwick and Luton.

15. The degree to which business travellers would be displaced from other airports is currently omitted from the economic analysis. This point should be included to determine the overall (net) benefit to the UK economy.

### **2.2.4 No evidence supporting "output change in imperfectly competitive markets"**

16. Sensitivity analysis and up-to-date aviation evidence should be provided to support the claimed uplift due to "output change in imperfectly competitive markets", as required by Department of Transport's Transport Analysis Guidance (TAG).<sup>4</sup>

17. Analysis should distinguish how much business travel:

- ! Benefits to UK residents against non-UK residents;
- ! Is displaced from other UK airports, so no change in UK benefit; and
- ! Is constrained (as opposed to leisure travel) in GAL's future baseline case – i.e. how much business travel occurs within the future baseline as opposed to within the additional project related increase in air passenger numbers.

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<sup>4</sup>Department of Transport (2020) TAG Unit A2.2 Appraisal of Induced Investment Impacts, Section 4.2. <https://assets.publishing.service.gov.uk/media/5fc8b696e90e0762ae0f69eb/tag-a2-2-induced-investment-unit.pdf>



18. This uplift is estimated to lead to £13.5bn in economic benefits. This accounts for the vast majority of wider economic impacts (of £12.0bn, which includes both the output change effects as well as other negative offsetting effects).

19. The rationale for including such an impact is the presumption that increased flight frequencies reduces costs of production, which leads to additional value being generated for the operator. An uplift of 10% on business passenger benefits is applied to estimate these impacts.

20. However, as the Department of Transport guidance (TAG) states:<sup>5</sup>

*“Prior to analysing output changes in imperfectly competitive markets an Economic Narrative should be produced. It should include information on the following: (1) identify potential changes in output as a result of a transport investment and justify these; (2) identify the sources of welfare, including any market failures and distortions; and (3) outline how the output change will be quantified and valued.”*

21. Such a narrative has not been produced by Gatwick, and the original evidence base underlying this is very old (the late 1990s and early 2000s), and was not produced for the aviation sector specifically.<sup>6</sup>

## 2.3 Carbon and Environmental Aspects in the Economic Assessment

### 2.3.1 Not compliant with latest TAG guidance with regard to traded and non-traded emissions

22. The benefit-cost analysis should be revised to take into account the latest TAG guidance. This includes revising the economic analysis so the carbon appraisal values for traded and non-traded carbon emissions are valued correctly.

23. GHG emissions are split between “traded” (i.e. covered by the UK ETS) and “non-traded” emissions, at 9.3MtCO<sub>2</sub>e and 29.2MtCO<sub>2</sub>e respectively.<sup>7</sup> Traded emissions are entirely excluded on the basis that the cost of a carbon permit is already reflected in the fares passengers pay.<sup>8</sup> This approach aligns with DfT guidance, which is now out-of-date. The correct method, as set out in the aviation unit of TAG is to value all emissions at the value of carbon, then deduct from the total any permit prices paid. This is important

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<sup>5</sup><https://assets.publishing.service.gov.uk/media/5fc8b696e90e0762ae0f69eb/tag-a2-2-induced-investment-unit.pdf>, paragraph 4.1.4.

<sup>6</sup>[https://webarchive.nationalarchives.gov.uk/ukgwa/20061011120000/http://www.dft.gov.uk/stellent/groups/df\\_t\\_econappr/documents/divisionhomepage/038896.html](https://webarchive.nationalarchives.gov.uk/ukgwa/20061011120000/http://www.dft.gov.uk/stellent/groups/df_t_econappr/documents/divisionhomepage/038896.html)

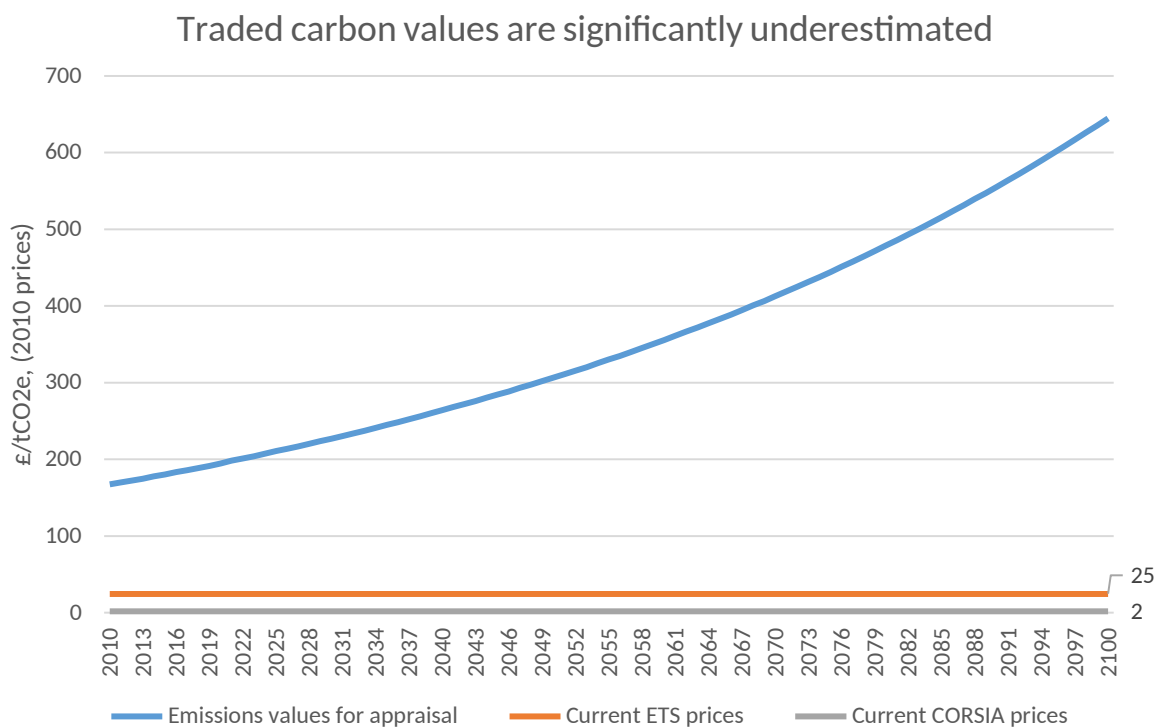
<sup>7</sup>APP-251, paragraph 7.3.4

<sup>8</sup>APP-251, paragraph 7.3.5

because the emissions values for use in appraisal significantly exceed the current carbon prices under the UK ETS and CORSIA, as shown in the figure below.

24. Furthermore, it is noted that non-traded aviation emissions include those operating under CORSIA, a carbon offsetting scheme, which Gatwick estimates to cover 10.5MtCO<sub>2</sub>e–11.6MtCO<sub>2</sub>e of emissions. These have been excluded from the assessment because they are also already included in fares. GACC shares NEF’s concern regarding how this figure for CORSIA-eligible emissions was arrived at. GACC would also point out the same methodological failing as applied to traded prices. The calculation should be the carbon values, less the price paid under CORSIA. A significant residual cost to society will remain after this calculation is completed.

25. Gatwick should revise its assessment to take into account the latest TAG guidance, and use the recommended TAG carbon appraisal values when valuing carbon emissions.



26. In their submission NEF highlight that traded emissions will create an opportunity cost to other emitting sectors covered by the emissions trading scheme that will see higher emissions permit prices. NEF note that it is important to understand that all additional greenhouse gas emissions make achievement of government net zero emissions targets harder, and all additional emissions entail opportunity costs to other sectors and areas of society. GACC believe this is an important consideration that should be assessed as part of the climate impact, in addition to concerns about the risk of non-delivery of the Jet Zero high ambition scenario, as discussed below.

### **2.3.2 Sensitivity analysis regarding Jet Zero (reference AEF submission and NEF submission)**

27. Sensitivity analysis should be included in the economic analysis, setting out the economic impacts of the UK not achieving the Jet Zero High Ambition scenario.

28. GACC concurs with NEF that the precise nature of the Jet Zero Strategy must also be considered. The government presents a 'High Ambition' scenario, which represents its preferred pathway to net zero emissions in the sector. However, this scenario represents only an "illustrative scenario" (Jet Zero, p.39), which is noted for the purpose of *monitoring the sector's progress* (p. 60). The government itself cannot guarantee that this scenario will unfold as it depends on many factors outside of government's direct control.

29. GACC agrees with submissions made by AEF and NEF that the Jet Zero Strategy relies on unproven carbon capture technology to deal with residual sector emissions. Use of nascent carbon capture capacity to re-capture air transport emissions made from further, non-essential air travel, predominantly taken by wealthy frequent flyers, represents an inefficient use of capacity and should count against the scheme. Similarly, use of energy and land for the production of so-called Sustainable Aviation Fuels (SAFs) comes with a significant opportunity cost.

30. Furthermore, many of the policies which will be required to increase the probability of the scenario being delivered are not yet designed or legislated. The risk that future emissions reduction technologies do not scale up at the pace desired should be considered by the applicant.

31. As presented this scheme runs counter to the precautionary principle. Therefore, appropriate mitigation measures should be put in place to address the significant risks to the environment posed by this scheme.

32. The applicant's failure to present any solutions in the case of non-delivery against the Jet Zero's High Ambition scenario must be addressed through clear steps and sanctions in the DCO.

### **2.3.3 Sensitivity analysis and wider impacts regarding Surface Transport decarbonisation**

33. Sensitivity analysis should be included in the economic analysis, setting out the economic impacts of not achieving the assumptions in the forecasts underpinning the UK Government's Transport Decarbonisation Strategy (as assumed by the applicant).

34. The analysis should include the impacts of the induced increase in road transport movements associated with the proposed highway investments.

#### 2.3.4 Non-CO2 effects should be taken into account

35. The applicant should be required to provide an assessment of the non-carbon effects of air travel made as result of the expansion of Gatwick Airport. GACC note that no solutions are presented by GAL or in government policy, to address the significant non-carbon emissions impacts caused by the scheme.

36. GAL explicitly recognises that non-CO2 effects can be two to three times that of the warming effect of CO2 emissions. However, citing uncertainty around these impacts, and claiming that it is in line with TAG guidance, the costs from non-CO2 pollutants are not quantified.

37. The TAG guidance states:<sup>9</sup>

*“However, despite scientific advances, considerable uncertainty still remains. Due to this uncertainty, especially surrounding the effects of different policy levers on non-CO2 emissions, **either a qualitative assessment should be made of the non-CO2 impacts, or a quantitative assessment can be made as a sensitivity test, drawing on the latest guidance on GWP factors and BEIS guidance on valuing greenhouse gas emissions.**”*

38. GAL has not carried out either a quantitative or a qualitative sensitivity assessment. However, the government’s transport appraisal guidance provides a simple system for quantifying the value of non-carbon gases. Given the potential magnitude of these effects, GACC considers that both a qualitative and a quantitative sensitivity should be carried out.

#### 2.3.5 Carbon from inbound flights have not been included

39. The impact of inbound flights should be included in the cost-benefit analysis. The impact of inbound flights should not be excluded based on carbon accounting practice, but included as these inbound (as well as outward bound) flights will result in a change in emissions for the project.

40. Gatwick states that its assessment does not include emissions from inbound flights. This is justified by GAL on the grounds that it is consistent with the emissions accounting methodology underpinning the carbon budget where UK international aviation

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<sup>9</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1126367/TAG\\_Unit\\_A5.2\\_-\\_Aviation\\_Appraisal\\_Nov\\_2022\\_Accessible\\_v1.0.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1126367/TAG_Unit_A5.2_-_Aviation_Appraisal_Nov_2022_Accessible_v1.0.pdf), paragraph 3.3.3

emissions are reported only for outbound international flights. Gatwick cites reports from the Climate Change Committee and BEIS showing that only outbound emissions are considered.<sup>10</sup>

41. While this might be appropriate from a carbon accounting perspective (as including inbound flights would lead to a double-count with the carbon inventory of other countries), it is not appropriate from the perspective of a cost-benefit analysis. In this case, what matters is to compare two possible scenarios: one with the Gatwick expansion, and one without.<sup>11</sup> From this perspective, it does not matter whether the emissions come from inbound or outbound flights, as in either case, the emissions would not arise if the Gatwick expansion does not go ahead. The need to assess inbound flight emissions is clearly set out in the latest edition of the DfT's TAG guidance for aviation appraisal.<sup>12</sup>

42. Therefore, the cost-benefit analysis should include carbon from both inbound and outbound flights.

## 2.4 Equity Aspects

### 2.4.1 Failure to include net impacts of tourism.

43. Gatwick Airport's primary output is the flying of UK residents overseas for leisure. The absence of any quantification of the impact of outbound and overseas travel and tourism spending, and the net balance of tourism impacts, is skewing the project's presentation of economic benefits.

44. The impact on the UK's tourism deficit is described as one of the DfT's 'key diagnostic tests' (Wider Economic Impacts of Regional Connectivity, 2018). Gatwick expansion's impact here is likely to be net negative; it should be estimated and included in the economic impact assessment.

45. The exclusion of net tourism impacts of the airport's expansion plans skews the economic analysis – presenting all of the potential benefits but not all the potential costs associated with the forecast growth.

46. GACC agrees with NEF that, given the significant resource that has gone into the application it would be reasonable to expect the economic analysis to present a far more

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<sup>10</sup>APP-251, footnote 153.

<sup>11</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1164818/tag-unit-a1.1-cost-benefit-analysis-may-2023-v1.0.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1164818/tag-unit-a1.1-cost-benefit-analysis-may-2023-v1.0.pdf), paragraph 2.2.1

<sup>12</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1126367/TAG\\_Unit\\_A5.2\\_-\\_Aviation\\_Appraisal\\_Nov\\_2022\\_Accessible\\_v1.0.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1126367/TAG_Unit_A5.2_-_Aviation_Appraisal_Nov_2022_Accessible_v1.0.pdf)

sophisticated understanding of the implications of the Airport's net tourism balance and its wider ramifications. Complexity is not an excuse for an impact to be ignored or dismissed.

#### **2.4.2 Equity benefits and the Levelling Down impacts of Gatwick Expansion**

47. One of the ramifications of the net tourism impact of Gatwick's expansion would not just be a different overall economic cost/benefit analysis but a different distribution of those benefits across the UK. This is explored in detail in the recent NEF report *Losing Altitude* (2023).

48. Firstly, GACC would like to see a clear response by the applicant to NEF's comments that such a large bias within the scheme's asserted benefit towards better-off business travellers (as noted in the economic analysis) also raises equity issues. This must be stacked against the distribution of the scheme's costs, which will be felt disproportionately by less well-off communities at home and abroad. This should be included in the economic analysis.

49. Secondly, GACC notes NEF's submission, which highlights that these equity dimensions of the Project have not been presented by GAL. The Project is likely to exacerbate inequity and run counter to the government's Levelling Up agenda. Expanding the existing airport capacity is likely to hurt the UK's held-back regional economies that consistently face a travel and tourism spending deficit while London has a travel spending surplus. Further overseas tourism, incentivised via cheaper air travel, will take more cash away from high streets and the domestic tourism industry. GACC requests that GAL consider the socio-economic impacts of the Project in light of the government's commitment to Levelling Up, with the intention to better balance the UK economy across the UK's different communities.

#### **2.4.3 The False Jobs Promise - Gatwick's failure to include the 'Future Baseline' of declining jobs**

50. GACC agrees with NEF that GAL is right to assume that the employment effects of the proposed expansion will be limited. New Economics Foundation (NEF), (*Losing Altitude*, 2023) note that there has been no net national growth in air transport sector jobs since 2007. This is based on earlier research (NEF, 2020)<sup>13</sup> that shows that aviation employment peaked in 2007, and that the job intensity of the UK aviation sector, i.e. the ratio of jobs to passengers, reduced an average of 2.6% a year from 2000-2019.

51. Historic data suggests this is also the case in the Gatwick Airport Labour Market Area, which has also seen minimal (if any) growth in air transport employment, despite significant passenger growth at the airport. Gatwick Airport employment remained around 24,000 from 2004 until 2016 in spite of growth in passenger numbers from 31.5 to 43.1 mppa,<sup>14</sup> an increase of 37%.<sup>15</sup>

#### 2.4.4 Quality of Jobs delivered

52. GACC also agrees with NEF that the quality of the jobs created is questionable. Wages paid to lower and middle earners in air transport have been declining rapidly in real-terms in recent years. Indeed the Air transport sub-sector has seen the fastest decline in real wages of any sector in the UK economy between 2008 and 2022.<sup>16</sup> Evidence should be put before the Examining Authority on trends in real wages at Gatwick Airport businesses over the past two decades in order to better understand its impact in the region. This should inform an indication of the likely distribution of pay levels for new long-term (operational phase) jobs by the applicant.

53. The impact of automation on future airport employment should be included, referencing historic trends.

54. Finally, it is worth noting that the areas around Gatwick Airport are not lacking in employment – in fact the opposite. In fact Councils around the airport are struggling to recruit to jobs which are required to support the existing economy in the South East – e.g. parking enforcement officers, social workers, care staff, teaching assistants, drivers.

#### 2.4.5 Affordable housing provision

55. GACC are concerned that GAL underplay the level of affordable housing need generated by the proposed expansion of Gatwick. The following concerns are raised with regard to affordable housing provision.

56. If GAL have based housing demand on 2011 census data then how have the changes in private rents as a multiple of Gatwick median incomes since 2011 impacted on the

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15<sup>3</sup>Sewill, B (2009) Airport jobs: false hopes, cruel hoax, page 10 (23,761

raph 6.2.2 (23,800 jobs in 2016).

16<sup>3</sup>NEF (2023) Losing Altitude, p13. After adjusting for inflation, average (mean) gross weekly pay was down 14% on 2006 levels in 2022, while median pay was down 21% over the same period.

efficacy of the modelling setting out the current, and likely future demand for affordable as opposed to market housing (for rent and for purchase).

57. Is the potential for employment to be met by Gatwick considered in terms of the attractiveness of its employment (as it is increasingly lower-paid employment at the airport), and therefore the employment is likely to draw workers from further afield either increasing worker transport journey distances or relocation to the Gatwick vicinity, increasing (affordable) housing demand.

58. Discussions in ISH3 noted that housing need was not being met by Crawley alone by the wider housing market area comprising Mid Sussex and Horsham. Please can GAL confirm that this is reflected in assessment of worker travel to the airport, and the provision of new bus routes/services to enable modal shift.

59. APP-042 (paragraph 17.9.68) notes that, "Appendix 17.9.3 considers whether operational employment associated with the Project might have implications for the demands for different tenures of housing, particularly in those areas immediately adjacent to Gatwick. This has shown that the potential tenure demands associated with the Project (which are likely to be **slightly skewed more towards affordable housing than the existing employment base**) are unlikely to have any impact on affordable housing demands beyond what is already emerging or being planned for [emphasis added]. This suggests that the project increases, at least slightly, the demand for affordable housing. However, it is difficult to identify where this is quantified in APP-201. Can this detail please be shared.

60. APP-201 refers to the provision of affordable housing. But this appears to relate to local housing plan figures as opposed to actual delivery, and does not distinguish to demand for social and affordable rented accommodation (as reflected by demand on local housing authority waiting lists) and demand for key worker/ shared ownership homes. Please can this distinction be made, especially with the regard to the affordable housing need highlighted in the report, as noted above.

## 2.5 Needs Case

### 2.5.1 Requirement to demonstrate overall need

61. The ANPS requires airports seeking to expand (other than Heathrow) to demonstrate sufficient need, additional to (or different from) that met by provision of a Northwest Runway at Heathrow. Gatwick has not done this.

62. Gatwick should also assess the need for increased use of its existing runway above 2019 levels, without development of the new Northern runway. This should be



contrasted with historic growth rates of flights and passengers (including allowance for Covid impacts), global economic trends, increasing awareness and need for legislation to govern aviation's climate impacts and changes in how international business operates. It is unlikely that any additional capacity or the Northern Runway will ever be needed.

63. The future baseline currently used for comparison in the DCO is itself a massive increase in flights and passengers. All assessments, including the EIA, should separately assess both the future impacts associated with increased use of the existing runway *and* with the Northern Runway, so the overall future impacts of Gatwick's planned growth can be clearly understood.

64. GACC has serious doubts regarding the GAL passenger forecast, which amounts to over 39mpa over the 24 years (2023-2047). GAL needs to explain the economic factors and methodology used in their forecast, which seems to have been solely reliant on modelling. GACC has noted that passenger numbers in 2019 were 46.3mpa, and although we have been told that passenger levels have returned to pre pandemic levels, this is not borne out by a figure of 40.9mpa in 2023, which equates to a drop of 12%. The forecasts by GAL appear to reflect continuous growth from that point.

### **2.5.2 Requirement to demonstrate need for Northern Runway to meet business travel demand**

65. The sections above set out that business travel is not predicted to return to the peak of 2006 due to structural changes in the industry. However, it would appear the GAL are arguing that it will return but more so in the case of the project than the future baseline case. GACC contend that the justification for such an assertion must be clearly made. GACC agrees with NEF's submission that highlights DfT evidence that when capacity is constrained, business travellers tend to displace leisure travellers and will continue to fly. New airport capacity is not required to serve current, or future, levels of business travel demand.

66. Therefore, the needs case should also be related to the economic assessment above, justifying the extent to which the additional runway is needed to generate the business passenger user benefits that are presented in the economic assessment for the Project. Also, the needs case should clearly justify how this Northern runway project at Gatwick is a special case, against industry evidence that leisure travel, not business travel, is more likely to be constrained if aviation capacity is constrained.

67. Therefore, assessment as to the degree to which the increase in business travellers is associated with expansion of the use of the existing runway (i.e. the future baseline case), against the project case (of additional 13 million passengers per annum) should be provided. This should include modelling, with sensitivity analysis and justification of the split between business travel and leisure travel in two future scenarios against current (post-Covid) baseline:

- a) Expansion of the main runway alone without any increased use of the Northern runway and
- b) Overall expansion of flights, including on the Northern runway as described in this project.

The elasticity of demand of leisure travel and business travel in this modelling should be explored and reflected in this modelling, and hence in the estimation of passenger benefits due to business travel.

### 2.5.3 Requirement to Demonstrate Adequacy of Future Baseline

68. GACC are not yet confident that Gatwick's future baseline air traffic movements and passenger volumes are achievable, or whether they are supported by sufficient physical infrastructure in the 'without project' (future baseline) case.

69. Firstly, GACC are not confident that Gatwick's ATM and passenger volumes baseline is achievable. If baseline conditions are not achievable, environmental and noise effects of the project will be understated. We therefore request that GAL might provide further evidence to substantiate the future baseline trajectory, including both ATMs and passenger numbers that underpin this DCO application.

70. Secondly, to support this future baseline GACC request that GAL additionally evidence the sufficiency of Gatwick's current physical infrastructure (single main runway, no routine use of the northern runway, two terminals with current footprint inclusive of future improvements agreed to date, current road layout etc.) might be able to accommodate the level of increased 'busy day' aircraft and passenger movements associated with these baseline figures in a way that delivers safe and acceptable standards of passenger service.

## 2.6 Compliance with UK Government Policy

71. GACC do not consider that the case that this is fully compliant with the Making Best Use of Existing Runways (2018):

- ! The notion that moving an emergency runway such that it is in a different place to enable safe separation with an operational runway such that 'two runways can operate at the same time' (direct quote of GAL on video recording of ISH1) means that this is turning one operational runway into two operational runways. This is the creation of an additional runway. In the same way as taking up the emergency lane of a motorway creates a 4-lane motorway instead of a 3-lane motorway, this is turning a one-runway airport into an airport with 'two operational runways'.
- ! GAL contended (ISH1) that all that was required in terms of construction was a 'resurfacing' of the emergency runway. This would reduce the reconstruction of the existing emergency runway to the reinstatement of the surface course of the

runway's pavement. GAL must clarify that this indeed resurfacing (e.g. 40mm surface level of pavement structure) as opposed to reconstruction, to determine that new infrastructure is, in effect, not being provided here. Just as the NN-NPS would expect pavement construction/resurfacing details as part of an application it is not unreasonable for this level of detail to be provided for an application that includes construction of an airfield pavement.

- ! GACC dispute GAL's notion that the emergency runway is some how 'sitting idle'. It is not. It is a fully functioning *emergency* runway. Just as turning a functioning hard shoulder adds an extra carriageway to a motorway, turning an emergency runway to an operational runway adds an extra runway to an airport. The question as whether this is sufficiently safe is considered a CAA issue but instead of the claimed increase in resilience, the risk of catastrophic failure (as has been seen in the case of the so-called 'smart' motorways in the UK) is of concern. Should an air travel accident be the result of this 'legal wrangling' of the application of the word 'existing runway' result then this would be a tragic consequence to this DCO application.

72. GACC questions whether this project is fully justified based on assumptions set out in Jet Zero modelling.

- ! Whilst the Jet Zero targets are policy, it is not clear that the Jet Zero modelling that sets out the ATMs (but not mppa passenger numbers supported by those ATMs). GACC contends that this cannot be policy itself, not least because the underpinning assumptions have not been shared publicly.
- ! Building on the above point it is clear that GAL have increased both the number and average size of the aircraft in both the 'future baseline' and 'project case', such that the total passenger movements, plane size and therefore also potential route distance might all be increased. It is not clear if this increase in passenger numbers and plane capacity is modelled in Jet Zero, and therefore whether it is compliant. Indeed, as noted in the first point above, if it is not possible to prove whether something complies with policy without issuing further information, then how can it constitute policy?
- ! Jet Zero point to MBU (2018) and ANPS (2018) as aviation policy that would govern this DCO so it is unclear how something subsequent, which back signposts these two as the governing policy documents can itself constitute policy, or would not Jet Zero say that is policy *in addition* to these.
- ! Jet Zero models the increase in ATMs to 2050, whilst Gatwick states that this number can be achieved 3 years earlier.
- ! In addition to increasing the ATMs to 386k/year earlier than in Jet Zero, GAL's DCO proposes a more rapid increase in mppa than that modelled in Jet Zero (as set out by AEF in their relevant representation). So, the GAL DCO proposals have a greater cumulative emissions (as greater area under the emissions - time graph) than that considered for Jet Zero. So this and point 4 above highlight that even if Jet Zero modelling was treated as policy, then this DCO sits outside of it. You cannot be consistent with a carbon budget by setting out to exceed it!

- ! Therefore, GACC contend that the reference to Gatwick's quoted ATM's in Jet Zero modelling is not sufficient to say the DCO is supported in policy terms by Je Zero.

## **2.7 Questions raised in Issue Specific Hearings**

73. In ISH1 GAL was asked whether business travel would recover at the same level as leisure travel which is expected to be at 95% of pre-Covid levels in 2024 and fully recover by 2025. GAL noted that there would be a 'comparable volume of business traffic' by the end of 2025. Please can GAL provide evidence of the rates of recovery for each year since Covid for leisure and business travel components of Gatwick's pre-Covid passenger mix and indicate precisely when they current predict business travel to return to pre-Covid levels. GACC note that full answers to the questions raised (in ISH1) by Alex Chapman of NEF have been committed to being provided in writing by WR1.
74. Please can GAL answer the following question raised in ISH1. Please may GAL provide details of the current, future baseline and proposed future project square metres of terminal capacity at Gatwick Airport.
75. Please can GAL answer the following question raised in ISH1. Please can GAL confirm how the amount of terminal capacity, piers, stands and other surface infrastructure is sufficient so as to not constrain the predicted 'future baseline' of 67 mppa and project level passenger predictions of 80 mppa. In this regard please provide comparison of what a 'busy day' would entail in the future baseline (2047, 67 mppa) and project (2047, 80 mppa) cases would be and in each case what % increase in different aspects of surface infrastructure (not least terminals, piers and stands) would be required. Please support this with references to other projects.

## Section 3. Terminal and Land Requirements (and associated environmental assessment)

### 3.1 Concern regarding final scale of development (not captured in environmental assessment)

1. The scale of **terminal expansion** for this dual runway scheme is far less ambitious than that previously proposed,<sup>17</sup> even though the passenger throughput envisaged is not that dis-similar.
2. In addition, constraints of current terminal capacity are noted. For example:
  - ! The South Terminal building struggled to cope with the scale of passenger throughput in 2019.
  - ! Both the South and North Terminal are known to have been constructed, at least in part with RAAC. The location and extent of this, and mitigation measured now and/or as part of the proposed future works, should be confirmed by GAL.
  - ! The arrivals area in both the North and South terminals is constrained with current peak passenger throughput. The existing terminals appear to lack sufficient exits to facilitate emergency egress if there was to be a sudden increase in passenger number and/or increase in those coming to meet and greet arriving passengers.
  - ! The proposed hotel adjacent to MSCP3 could limit potential to extend the terminals.
3. In addition, the current terminals are ageing with parts of the South Terminal constructed in the 1950s. Yet, the proposals to provide the Airport with the capacity needed through to 2047 seem to be limited in scale, and also appear to lack the improvements one might expect should the airport really be planned a near-doubling of passenger throughput as a result on the DCO application. The adequacy of stand capacity has also been highlighted by easyjet and the Gatwick Airline Consultative Committee (ACC) in their relevant representations.
4. Given this GACC have reviewed the Airports Commission analysis of GAL plans submitted a decade ago to determine whether the above concerns might be justified. The increased capacity proposed at this time was judged by the Airports Commission's consultants (Jacobs, 2014, p35)<sup>18</sup> as providing, "*Space allocation per passenger ... towards the low end provision in the context of International 'gateway airports' of comparable size. The scheme could then be seen as optimised to accommodate primarily short-haul, point-to-point passengers, who might be likely to spend less time in terminals, and fewer transfer passengers.*"

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<sup>17</sup>For example see images released by GAL in 2015 - [REDACTED]

<sup>18</sup>Jacobs (2014) Appraisal Framework Module 14: Operational Efficiency: Ground Infrastructure Gatwick Second Runway.  
<https://assets.publishing.service.gov.uk/media/5a7ee935ed915d74e33f3308/14-operational-efficiency--ground-igw-2r.pdf>

5. Considering the Jacobs 2014 report the following table has been adapted from Table 8-1 to provide a rough guide of terminal space requirements that might be used as a rough comparison to that proposed in the DCO application. This is set out in the Table below.

	GFA (m2)	mppa	mppa increase	floor area increase (m2)	floor increase/mppa
Existing	344900	42			
N+S terminal improvements	370834	45	3	25934	8645
Phase 1	487094	60	18	142194	7900
Phase 2	598234	75	33	253334	7677
Phase 3	768234	95	53	423334	7987

**Table: Comparison of floor space requirements for increased Terminal Capacity for Gatwick's submission to Airports Commission (2014)**

6. From the above, the floor increase/mppa to increase Gatwick to around 80 mppa might be considered to be 7900m2. Considering that DCO might need this scale of increased floor area to increase to around 80 mppa from its current maximum use of 46 mppa (2019) would imply that an increase in terminal capacity of around 268,600m2 (gross floor area) might be required.

7. APP-245, paragraphs 4.5.68-4.5.69 quantify the proposed extensions to the north and south terminals as increasing terminal capacity by 50,642m2. This is around twice that proposed in 2014, but would still only accommodate around 6 mppa increase in passenger numbers. DCO scheme appears to have a much more significant increase to the North and South terminals than was considered by Jacobs in 2014.

8. APP-245, paragraph 4.5.38 notes that the additional pier 7 will have an internal space of approximately 101,000m2. If was legitimate to treat pier 7 as if it were a new Western terminal this would still only increase capacity by 151,462 m2 – 57% of the increase implied by the above comparison.

9. This quick check suggests that the terminal capacity increase planned falls either just or far short of that required to accommodate GAL's projected future baseline. Therefore, it would appear that GAL's DCO application does not include any new terminal capacity to cope with the increased passenger numbers associated with the DCO's project increase in passengers from 67 mppa to 80 mppa.

10. GACC would therefore request that GAL explain how they can accommodate such growth in passenger numbers at Gatwick with the terminal, pier and stand capacities set out in this DCO application.

11. If Gatwick actually intend to construct a new terminal, as the existing terminals appear to be inadequate to support the proposed increase in passenger throughput, then this should be included as part of this application. Not including it at this stage risks masking the overall land-take required for the development, such as through shifting buildings and infrastructure that is currently within the red line that denotes the extent of this development beyond this boundary. The ecological and other impacts of wider development, *should they be needed as a direct consequence of this development*, should be able to be assessed so the worse case impact to the surrounding area is understood through this DCO examination.

### 3.2 Removal of land proposed still to be safeguarded for a future 'second' runway.

12. Through this DCO application, as reflected in GAL's 2019 Masterplan for the airport,<sup>19</sup> GAL are still seeking to safeguard land for what they describe as a future second runway to the South of the airport. The GAL 2019 Masterplan notes that this would increase passenger numbers to 95 mppa, just 15 mppa more than proposed through this DCO (Masterplan, p17). GAL should confirm whether this envisaged capacity is still correct.

13. Such a development in the future would have further environmental impacts (including ecological due to land-take and climate due to even greater flights). The increase in flights for this, are well beyond any modelling in Jet Zero for Gatwick (all of the modelled ATMs to 2050 are included in this DCO application. No case has been made for this to be included, either in terms of need or in compliance with climate and other environmental and local infrastructure constraints. Therefore, this safeguarding should be specifically struck out of consideration as part of this DCO, before the existing scheme is permitted. This should be explicated excluded from the Section 106 agreement.

### 3.3 Wider land requirements and associated environmental impact

14. Based on the above assessment of the sufficiency of terminal capacity GACC request that GAL confirm what additional buildings, and infrastructure, and such land requirements would be required to increase the airport to a capacity of 386,000 ATMs and 80.2 million passengers each year, and how this is reflected in their environmental statement.

### 3.4 Construction stage land requirements and ecological impact

15. GACC would like GAL to confirm the ecological impact has been assessed for the land proposed to be used as construction sites for the project. It is noted that GAL is

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<sup>19</sup>h [REDACTED]

proposing to operate construction sites on land beyond the red line of the current planning application, including land in the vicinity of Riverside Garden Park and land just north of the South Terminal roundabout (and M23 spur). In both cases please confirm the area of land required and what land/route is required for access routes (noting that the land to the north of the South Terminal Roundabout is proposed to be accessed from both the roundabout (for construction vehicles) and the Balcombe Road (for other vehicles). For each of these and any other construction sites outside of the project boundary please share GAL's ecological assessment of the land, including the land required to access these sites.



## Section 4. Overall Environment Assessment

### 4.1 Environmental Assessment

#### 4.1.1 Overall Environmental Impact – Is the Environment Assessment Sufficient?

1. GACC are concerned that the combined effect of potential underestimation of surface infrastructure to support growth in runway utilisation with not taking the worse case environmental impact could combine to make the actual impact on ecology around the airport far worse than reflected in the Environmental Statement (ES).

2. *Future baseline – risk of understatement of infrastructure needs*

! **Issue:** GAL should demonstrate that sufficient surface infrastructure (e.g. terminals, stands, piers, car parking, hotels, offices) have been provided to fully accommodate the level of growth set out in both the future baseline, and the project case.

! **Potential Impact:** Understating this need could need to future infrastructure being required at a later date, that is a direct impact of the project. This could extend the land assets required to support the scheme, with more development either inside or beyond the red line of the development. This could directly impact (i.e. through removal) or indirectly impact (e.g. due to proximity to) the ecology of a greater area around the airport.

3. *Future baseline – risk of understatement of environmental impact.*

! **Issue:** GACC is concerned that an over-optimistic estimate of what the without project 'future baseline' is could lead to the increased flights and passengers associated with the project to be understated. However, the environmental impact should (as highlighted by questions from the ExA in ISH4) be measured against the current extent of environmental impacts to the full as project case.

! **Potential Impact:** The significance of environmental impact could be understated, so impacts might require further mitigation or be unacceptable.

4. For example, the post-Covid road traffic data suggested a drop in traffic from 2019 to 2023. This means the future baseline over-estimates the reality, resulting in an underestimate of the difference between the with and without project scenario. This highlights the need for a precautionary approach. But more so, it highlights that the GAL application does not present the worst case. The full assessment of environment impact (noise and other areas) should be assessed against the current situation.

5. GACC contend that it is important that the Environment Impact Assessment considers the worse case assessment, to ensure that the negative impacts are underestimated then the mitigations are not enough. Therefore, GAL should consider firstly the technical sufficiency of infrastructure provision proposed for both the 'future baseline' and 'project case' and then ensure that the worse case environmental impact of that level of intervention is reflected in the ES.

#### 4.1.2 Controls to Mitigate Environmental Effects (including climate, noise and transport)

6. GACC reiterate comments by the Local Authorities and National Highways (principally in ISH2) noting the requirement for controls that enable the quantum of

impacts to be limited directly at the airport level, if required. This was initially discussed with reference to ensuring GAL's surface access commitments are delivered but applies equally in other areas. GACC support the proposals made that this be linked to the permission for both ATMs and passenger numbers. The control of flight and passenger numbers should also be used as a means to cap scope 3 emissions associated with the airport, which are principally those associated with flights. Referencing the Horse Hill Supreme Court case<sup>20</sup>, GACC contend that the environmental impact assessment should consider the impact of enabling flights just as drilling for oil must consider the impact of its downstream emissions: burning oil.<sup>21</sup> In this case emissions from flights are direct consequence as long as the airport operator plans to use the runway to increase flights on it, which is in any case the justification for the need for this project. GACC contend that this should be reflected in the Section 106 Agreement and applied to all areas where the project has environmental affects that should be controlled.

#### **4.1.3 Sharing of Data Sets, Assumptions and Outputs needed to verify true scale of impacts**

7. GACC would like to reiterate the comments made regarding sufficiency of data sets and information shared by GAL to enable full examination of the DCO application. GACC believes the models and model assumptions should be disclosed to enable independent verification and review by all those participating in the DCO examination. Otherwise, it looks like that GAL might be able to, in effect, 'mark its own homework'. It should not be left to GAL to retain the data, assumption details, and full sets of model outputs and results such that it is the only organisation able to determine the significance of an impact. It is our view that complex models and assumptions that underpin them should be forthcoming, and be able to viewed as part of this public examination, so that all are able to able to examine the inputs and outputs in detail and determine whether we agree or do not agree with assertions made in the application as to validity of model outputs and the significance of impacts that they imply. GACC contend that so far Insufficient detail has been provided by GAL and that this lack of sharing of what underpins their submission, risks putting the overall effectiveness of the DCO examination in to jeopardy.

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<sup>20</sup>Pending [REDACTED]

<sup>21</sup>To quote the appellant in the Horse Hill case: "Planning authorities say that they don't need to consider the climate impacts of the actual burning of the oil - just from the drilling. It's like saying a chocolate cake is low calorie as long as you don't eat it."

## Section 5. Ecology

### 5.1 Land Ecology

#### 5.1.1 Overall Comments

1. GACC request that GAL provide the following, reflecting comments made by the Sussex Wildlife Trust (Relevant Representation).
2. GAL should provide a full schedule setting out the type and total area of habitat that would be lost, and the subsequent mitigation and compensation, for each of these habitats in turn. This should clearly identify the type and amount of habitat gain and loss in different locations, the mitigation put in place, the timing of these and lag impacts, so can what is being proposed and when is clear. Currently information is scattered through the documents it is hard to appreciate the overall impact of scheme, including during the construction stages.
3. GACC shares Sussex Wildlife Trust's concern that there is currently a lack of a landscape-scale approach to assessing impacts, including on individual species such as bats. Instead the focus on biodiversity net gain, which measures species diversity not overall populations of species, risk undermining the need for a wider landscape-based approach. The overall impact of the DCO on the surrounding landscape, including its further fragmentation of habitat, including through woodland removal should be considered. This requires a holistic assessment of the impact on the wider landscape, beyond the red line boundary, than that evidenced in the application. GAL should be required to share assessment and subsequent conclusions as to the biodiversity impacts that exist at a landscape-scale. This should include an explanation as to how GAL are proposing to address the effects on ecological networks in terms of habitat connectivity and function. For example fragmentation and woodland loss along Riverside Garden Park and impacts on the wider landscape and supported species, including bats.
4. GAL set out how they have assessed the biodiversity impacts of the time lag between habitat loss and subsequent habitat creation and maturity, particularly with respect to woodland. The way in which the prolonged (e.g. 20 year) of significant impact this will have should be set out, not just on the presence of species (as set on in BNG requirements) but the overall amount of different species/nature that is present over this time.
5. GAL to set out how Biodiversity Net Gain (BNG) is to be delivered, such as to ensure it is separate from and additional to requirements under the mitigation hierarchy. In addition, the results of the BNG in terms of net gain in biodiversity are not clear where the impact on most of the habitats and species is assessed as being negative rather than positive.
6. GAL should provide full details to ensure appropriate monitoring and management of newly created habitats. This should address the failings due to the poor consultation on ecological aspects (there was only one meeting of the biodiversity working group, which was not the effective consultation process as implied in the DCO application). There are still no ongoing commitment registers, with little clarity on quantifying the

overall habitat impact there will be, and subsequent mitigation measures. The areas of essential mitigation and compensation are not yet clearly set out.

### **5.1.2 Impact on Riverside Garden Park**

7. The area of Riverside Gardens that is proposed to be lost due to the widening of the A23 should be quantified, including the land take required for noise barriers (of which design details should also be provided) which are suggested to the north and south of the widened road. Trees and shrubs will be lost due to the road widening which provide habitat and lessen the visual and noise impact of the airport on local houses. It is not clear how this impact is to be mitigated.

8. Please provide details of the alternative site assessment for consideration of the alternative ecological sites to offset the sites that would be lost as a result of this project. In particular, the replacement space for the loss of Riverside Garden Park appears fragmented between roads and railways. How can these fragmented portions support the same quantum of nature and biodiversity to that lost, and what impact does the loss have on the ecological value of the remaining portion of Riverside Garden Park?

## **5.2 Water Quality / Riverine habitat quality**

### **5.2.1 Summary**

9. The condition of the River Mole around the airport is already noted as being poor, and of a declining water quality. It has declined in recent years. Whilst some of the airport's attenuation and treatment plans inside the airport boundary appear to have been designed appropriately it is not clear what impact the Project, as designed, on water quality. However, it is unclear from the application why most if not all of these improvements are not proposed regardless of whether the DCO goes ahead, as they also relate to current airport operations and the future baseline case. Why are they not being undertaken in any case to reduce the impact of Gatwick Airport's existing and already proposed expansion, and thereby improve the quality of the River Mole?

10. The assessment of ecological impact of increased flood risk (including due to Thames Water sewage works outfalls in the River Mole and tributaries) and the impact on water resource neutrality of the additional water extraction proposed for this project should be fully assessed.

### **5.2.2 Overall assessment of water ecological impact**

11. Much of the reduction in water quality in the River Mole and its tributaries are outside of the project site boundary, which is the limit for the ecological baseline survey conducted. However, the Airport has, and will in future continue to have, an impact on the River Mole's ecology far beyond its boundary, because of what and how much is flowing from the airport either directly or indirectly into watercourses. GAL request that the Phase 1 Habitat Survey be extended to cover the extent of the River Mole and other watercourses whose ecology is impacted by this major development, so the full impact is understood and can be mitigated.

### 5.2.3 Reduction of chemical (including de-icer) impact

12. Our rivers and drinking water are already being contaminated with significant chemical pollution including persistent pollutants such as PFAS<sup>22</sup>, which are found in de-icers used at the airport. Such pollutants impact aquatic life and ultimately find their way into our drinking water. GAL should seek to eliminate this pollutant impact regardless of whether the airport expands.

13. The models of de-icer use predict an increase in the amount used. This is based on a de-icer impact assessment: models used harsh winter of 2017-18 used a lot of deicer. However, it is unclear how the de-icer contaminated runoff treatment system proposed to be constructed adjacent to the long-term storage lagoons relates to the project. This is noted as being designed to treat around 100 litres/second and is modelled to improve quality of Gatwick Stream. Why is this not required as part of the predicted 'future baseline' with its expanded use of the existing runway, to help restore the already poor water quality in the River Mole? What is the required capacity of this treatment with and without the project?

### 5.2.4 Culvert improvements

14. Similarly it is noted that the project includes measures to improve fish passage with a weir upstream of the runway culvert and plans to enhance the River Mole channel and increase its capacity downstream of the runway culvert – as it is extended under the proposed new runway extension. Except for the 12m additional length associated with the movement of the emergency runway North why are these improvements not being undertaken regardless of whether the project is approved?

15. However, there is a risk of sedimentation and downstream erosion due to the reduced gradient through this lengthened culvert (297m longer; gradient reduced from 1:1250 to 1:1890 (downstream channel gradient 1:2035). Mitigation should be provided to improve and mimic natural channel flow by using suitable gravel sizes.

### 5.2.5 Car Park runoff

16. The car park runoff treatment proposed appears to be insufficient. APP-144, page 6 notes that, "The existing treatment in place for car parking areas is insufficient." And then notes that, "It is anticipated that sufficient treatment will be included." This should be assured, for all car park areas: those already existing, those separately permitted and those set out in the DCO. The improvements to existing car parks should take place regardless of whether the project is permitted. All car parks should have sufficient mitigation to ensure there is no reduction on water quality from their runoff to receiving watercourses.

### 5.2.6 Construction period risks to water quality

17. Risks to water quality during the construction period include vegetation removal, soil stripping and excavation works leading to run-off, which may convey harmful substances to watercourses. This includes sediment load, changes in pH and turbidity,

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and risk of accidental spillage of fuels, oils and lubricants (e.g. linked to uncontained run-off from construction areas). In addition, there appears to be a risk of temporary storage of “inert spoil” on the Pentagon Field reducing the potential floodplain storage and increase the risk of run-off with high sediment and/or pollutants. Mitigation needs to be proposed to prevent and/or contain run-off from inert spoil.

## Section 6. Surface Transport

### 6.1 Summary

1. Gatwick Airport Limited (GAL) surface transport proposals suggest low commitment to sustainable travel, with weak sustainable travel targets leading to an increase in car traffic. The proposals will lead to increased highway travel times and increased crowding on busy mainline rail services.
2. The proposals from Gatwick Airport need to be honest in that they are adding highway transport capacity, which could encourage car use in travel to/from the airport. Additional highway capacity can provide, at best, a short-term benefit in reducing congestion and improving journey times, but the benefit will erode, as new or more traffic is attracted by the extra capacity which gradually fills until rising congestion again acts as a deterrent.<sup>23</sup> The net effect is more traffic on the roads, and precisely the opposite of the transport response required to tackle the climate emergency and other environmental targets (including through a modal shift to walking and cycling, buses and trains).
3. GACC's view is that the DCO is incorrect to have responded to National Highways to increase road transport capacity (reducing congestion and therefore incentivising car travel both for airport and non-airport related journeys) whilst ignoring completely calls for increased public transport modal share from that set out in the GAL 2021 consultation and completely ignoring calls for increased investment in greater public transport capacity (principally rail, but also bus and coach). Instead the GAL 2022 consultation and subsequent DCO have watered down the public transport modal shift targets, and failed to back up even this poorer ambition with meaningful investment proposals. Overall this will lead to increased surface transport carbon emissions.

### 6.2 Insufficient Sustainable Transport Targets

4. **Gatwick's proposals and mode share (the proportion of passengers and airport staff using each form of travel to access the airport) targets fail to prevent a significant growth in car use for surface access. Gatwick should adopt mode share commitments without any increase in car use and all additional surface access via sustainable transport.**
5. Additional cars generated by the project will cause increased carbon emissions, degrade air quality, increase noise, severance and disruption in the local area, and increase highway travel times which will impact economic productivity. Without widespread bus priority measures, bus journey times and reliability will be impacted by the increased traffic.
6. GAL has a public transport mode share target in 2047 of 55% with the project. The annual average air passenger public transport mode share was around 45% prior to the

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<sup>23</sup>For example, [REDACTED]

Covid-19 pandemic [APP-258, paragraph 57 & paragraph 8.6.13], 52% in the 2047 baseline [Strategic Transport Modelling Report, paragraph 11.2.6, Table 72 & APP-258, paragraph 8.6.13] and is forecast to be between 54% and 56% with the project in 2047 [Strategic Transport Modelling Report, paragraph 12.2.3, Table 135] according to GAL modelling. This mode shift is insufficiently ambitious given that the number of car trips by air passengers in the modelled 24-hour period accessing the airport increases by 12% between the future baseline and with the project in 2047, and 34% between 2016 and with the project in 2047. TfL (Relevant Representation) note that vehicle kilometres are projected to increase by 25.6% from 2019 to 2047 with the proposed development.

7. In addition to GACC's view that GAL's mode share targets for public transport for public transport are not good enough, National Highways have commented on where GAL have included sufficient measures to even achieve the targets that GAL have set. National Highways (Relevant Representation, p2) doubt whether the measures in the DCO can achieve even the current modest mode share commitments and call on GAL to evidence how its mode share commitments might be delivered, achieved and maintained. National Highways are concerned that further congestion will result if these mode share targets are not achieved.
8. TfL (Relevant Representation) state that the target of 55% sustainable mode share for passengers and staff needs to be increased if environmental impacts are to be addressed. They note that Gatwick can count on exceptional access to the rail network, with fast and frequent connections to London and a wide range of destinations. Expansion of capacity should not be underpinned by any increase in highway trips. WSCC (Relevant Representation, 3.16 vi) and Crawley Borough Council also do not consider the Surface Access Commitments to be sufficiently ambitious.
9. TfSE (Relevant Representation) note that the highway changes in the DCO appear insufficient to make sustainable modes of travel more attractive to staff and passengers and unclear how this will lead to an increase in the proportion of passengers using sustainable transport to 55% by 2030 (GAL's latest, reduced, commitment is to a minimum 55%, referenced in their Environmental Statement, or the remaining target of 60% in the Gatwick Airport Surface Access Strategy, Oct 2022).
10. SCC (Relevant Representation, 3.23, 3.41) is also concerned about the reduced level of ambition in GAL's sustainable transport mode share target, including a slightly lower target than in the GAL's Second Decade of Change strategy, also published in 2023. SCC would like GAL to shift its approach to constrain highway growth to ensure Surface Access Commitments are delivered ahead of any increase in road transport capacity. GACC agrees with this concept of constraining Surface Access but that this should be designed to eliminate any highway growth. GACC would expect that levels of ambition for increasing public transport share to increase not decrease with time.
11. GACC's view is that the project should include measures, which avoid any increase in car trips. GAL modelling estimates that planned measures would result in 56% of passengers using public transport on an annual average day (APP-260, paragraph 12.2.3). Further data would need to be provided by GAL to confirm, but pending that our estimates suggest that the public transport mode share would need to increase to 57% in a scenario with no additional car trips over the 2047 baseline. With or without



the northern runway project, the GACC view is that GAL should take a more proactive approach to reducing car travel to and from the airport, working with public transport delivery agents and local authorities to examine more impactful public transport, active travel and car restraint measures. Starting this now would demonstrate commitment and also test GAL's ability to reduce car travel to and from the airport.

12. Proposed highway changes for the project comprise major works, including capacity increases, at the South Terminal and North roundabouts, Longbridge roundabout, and enhancement of the M23 spur. GACC disagree with GAL's claim that these highway changes are necessary. They are a response to GAL's initial consultation in 2021 with a surface access strategy that chose to generate additional car traffic. Any growth in surface access should be carried by improvements on the public transport network and the (relatively small) expected share of travel by walking and cycling.
13. GAL's policy approach appears to be that they believe it is unrealistic to expect no increase in car, because they are unprepared to model, consider or plan for any investment in public transport access. This results in GAL proposing Gatwick should be expanded to be as large as Heathrow is today, but without the equivalent investment in public transport infrastructure investment. This is not acceptable.
14. This position is supported by TfL who state (TfL Relevant Representation) that the sustainable surface access targets should not entail any increase in car trips or car parking and ... be supported by a wider sustainable transport fund and demand-side measures.

### **6.3 Lack of Delivery against Targets**

15. GACC note that the sustainable mode share targets have been reduced from the figures shared during consultation. This followed a point raised by GACC-in response to the 2021 consultation that the GAL's model-based projections were not achieving their own targets. If nothing else, this undermines trust in the rigour upon which the targets are based. We remain unconvinced that the surface transport measures proposed by GAL are sufficient to deliver even the downgraded unambitious mode share targets proposed for the project. We would like GAL to provide a better explanation of how the proposed measures will achieve the target mode shares, and how these can be enhanced so that there are no additional car trips to and from the airport. GAL should carry out and share sensitivity tests, which show the model shares arising from a plausible and likely range of inputs, responses and outcomes.
16. GACC do not believe there is a necessity or desirability for an airport plan that is a net generator of significant road transport demand.
17. GACC suggest a similar approach to the Green Controlled Growth proposed for Luton Airport, where airport growth cannot proceed unless key targets for the modal shift to public and active transport are achieved, which could include the target that all additional surface transport access is by sustainable modes. This should be linked to monitoring data collected and publicly reported on an annual basis. This should place the reliance of delivery of modal share targets on the level of public transport investment supported by the scheme, not relying on forces beyond their control. GAL

must explain their choice to invest substantially in increasing strategic road network capacity in the vicinity of the airport, to accommodate additional car traffic that Gatwick is generating, in place of choosing to enhance public transport capacity (rail capacity, bus and coach road share, active transport network).

18. This should take the form of a cap in road transport such that this drives down carbon emissions, air pollution, noise and associated impacts from surface transport. Surface transport aspects should be included in a Schiphol Airport style cap in airport related impacts, as described in our climate and noise submissions. Gatwick Airport must take full responsibility for its wider surface transport impacts and carbon footprint. Such a strategy should also consider how to discourage car use beyond the immediate vicinity of the airport, such as passengers and staff parking some distance from the airport and then using public transport to access the airport.
19. Finally, SCC (Relevant Representation, 3.27-3.30) are concerned that highway expansion is not linked to the achievement of mode-share targets (which would surely be harder to achieve after such highway works are completed and road congestion lessened but rail congestion is predicted to continue to grow). SCC are concerned about the failure for any mitigation measures to ensure that mode-shift targets for surface transport are met, or for any sanctions on GAL to ensure their delivery.

## **6.4 Model clarity, baseline data, assumptions and alternatives**

### **6.4.1 Modelling clarity**

20. GACC are concerned that sufficient modelling information is shared to enable not just National Highways and PINS, but all other stakeholders wanting to understand the impact of the scheme, to fully appraise what is proposed. Most importantly, the information should be made available in a consistent and accessible format, without the need for readers to search through multiple documents and tables in order to make their points.
21. WSCC (Relevant Representation, 3.16ii) calls on the applicant to ensure that the modelling has taken account of the latest DfT guidance TAG Unit M4 - Forecasting and Uncertainty.
22. National Highways (Relevant Representation, page 10) consider that the application is not accompanied with sufficient modelling information to enable National Highways, nor the Examining Authority, to understand the impact of the Scheme. In addition, the future baseline model includes the National Highways Smart Motorway M25 J10- 16 scheme but all new Smart Motorway schemes are to be removed from government road building plans so the wider Strategic Road Network in the vicinity of Gatwick Airport will have less capacity than that currently modelled. This should be corrected.
23. SCC (Relevant Representation, 3.1, 3.20, 3.38) is concerned that the modelling adopted cannot be considered accurate enough to provide confidence in GAL's ability to meet their Surface Access Commitments (SAC), including due to the assumptions made and levels of uncertainty in the modelling. This includes over-estimation of the public transport demand in the model, and lack of interaction between the highway and public

transport models and potential overestimation of shift away from car travel in the model.

24. SCC and RBBC (Relevant Representation, 27) are both concerned about the limited extent of the VISSIM multi-modal traffic simulation model, which appears skewed towards Crawley, rather than Horley and the wider area to the North. This is important as the proposal plans more traffic congestion from Horley to Reigate and Redhill, and beyond. TfL (Relevant Representation) similarly raised concerns that the highway model only includes a small proportion of South London in the 'detailed modelling area.' The rest of London is modelled as part of the 'Fully Modelled Area', but with fixed speeds, as taken from the South East Regional Transport Model (SERTM). It is a concern that the full impacts across wider areas of London have not been assessed. The demand calculation of highway trips to and from London for both baseline and project scenarios needs to be provided.
25. GAL's reports and data should be easier to navigate, and data that would have been useful for understanding and responding to the GAL's case is missing or hard to find. For example, the indexing of reports is too high level and sub-sections should have been listed throughout, including appendices, to make it easier to find information. Data which would have been useful is missing. For example, the Strategic Modelling Report (APP-260) includes tables which provide data on passenger surface access trips on a high June day. Table 70 includes the absolute number of trips and these are presented as a percentage mode shares in Table 71. Table 72 shows the percentage passenger mode share for an annual average day, but the absolute number of trips are not shown.
26. **Heathrow impact.** GACC agree with National Highways that the following statements by GAL (paragraph 8.1.5 of Transport Assessment report) should be justified: "However, by 2047, there would be little difference between air passenger demand at Gatwick with or without Heathrow R3." and (paragraph 7.2.4 of the Strategic Transport Modelling Report) "In terms of public transport, the network and catchments serving the two airports are different and therefore the cumulative effects of additional runways at Gatwick and Heathrow are unlikely to be significantly different to those modelled for the Project".
27. It would appear that GAL have estimated passenger demand for Gatwick and the geographic spread of the source-destination of future passengers, completely independent to whether other airports in the South East increase in their capacity. This approach risks a) overestimating overall demand and b) misrepresenting the likely geographic spread of passenger origins, and thus the propensity to travel by car as opposed by public transport to the airport. Therefore we request that GAL set out how they have modelled the expected change in overall levels of demand, and geographic spread of source-destination of future passengers with:
  - ! Approval of Heathrow 3<sup>rd</sup> runway expansion and what date(s) have been assumed
  - ! Approval of London City airport and London Luton airport DCO expansion plans;
  - ! Operation of other airports with approved expansion capacity at their planned levels of future operation.

#### 6.4.2 Baseline data

28. **Modelling to use 2023 staff survey data.** The applicant notes staff surveys are carried

out every 5 years but uses data from 2016 to inform the traffic model. National Highways (Relevant Representation, p10) note the existing Airport Surface Access Strategy (ASAS) requirement to undertake a staff travel survey in early 2023. Please can this be provided and used to update the modelling of staff transport.

29. **Basis for active travel monitoring data.** This is expected to be mainly staff not passenger access and would be reflected in staff travel data (again for 2023). National Highways (Relevant Representation, p42) note that the current mode split assumptions on incentives for active travel have not been defined, agreed or secured – or relate to forecast assumptions for staff travel.
30. **Post Covid rail travel data.** Similar pre-Covid data is used. We agree with National Highways (Relevant Representation) that post Covid data should be used, as for staff and active travel, to ensure the amount of measures required to deliver the modal shift targets, based on the latest possible travel data, is clear.
31. **Choice of August as worse case highway baseline case.** National Highways (Relevant Representation) note that GAL states “However, an August day is not the busiest in terms of the local road network where traffic volumes can be 1-2% below the annual average condition.” However, National Highways notes that, in Figure 31, the information presented demonstrates that weekday arrivals by car are 41% in August and 27% in June. We reiterate the request by National Highways therefore requests that the Applicant clarify why June provides the reasonable worst-case scenario for traffic when reporting the associated impact on the SRN.
32. **Impact of highway expansion around the airport on transport modelling.** GAL should explain how the highway widening of the eastbound A23(M) spur is expected to impact upon the mode share estimates, transport derived noise pollution and air quality. None of these impacts were put out for GAL in their additional consultation in 2022.

#### 6.4.3 Assumptions

33. **Public transport modelling assumptions (and associated off-airport parking impact).** We understand that the way public transport trips to the airport are currently measured is in terms of the mode of transport that passengers and staff arrive at the airport. So if passengers or staff currently drive the majority of the distance to the airport and then park off airport and get a bus or train to the airport this appears to be counted as a ‘public transport journey’. This is likely to understate: a) the carbon emissions associated with surface transport to and from the airport; and b) the level of local road traffic and congestion both currently and in future that is associated with Gatwick Airport. As a result it could also introduce a perverse incentive such that efforts to increase public transport patronage as currently measured might just mean a shift to how passengers and staff end their journeys to the airport, adding to road transport impact (above that modelled) and to off-street parking (above levels anticipated by the applicant).
34. CBC (Relevant Representation, 14.2 viii, b) note that GAL propose to remove 3,345 ‘Summer Special’ parking spaces, which are at the more affordable end of GAL’s parking pricing range and have asked for clarity as to whether GAL intend to retain the range of pricing and parking packages that are currently available at Gatwick. GACC request that

the impact of this removal of this cheaper parking on off-airport parking, is clarified, especially if low-cost public transport alternatives are not available from the range of locations from which passengers will travel to Gatwick.

35. GACC believe that the risk of “public transport journeys” includes journeys that are predominantly by car, with off-airport parking and ‘final mile’ public transport to the airport undermines the model. This, we believe, is reflected in National Highways (Relevant Representation) requirement for GAL to demonstrate the methodology used to determine the modal split and the parking provision for surface access is both reasonable and achievable. Modelling is required to demonstrate that there is sufficient shift in public transport (from home-to-airport, not just the ‘final mile’ on public transport). What level of multi-modal trips has currently been modelled by GAL?
36. GAL should share the basis for its off-street parking assumptions (including local survey evidence in Horley, Crawley, surrounding villages within 10 miles of the airport, and other mainline stations on the Brighton mainline) as to the current amount of off-airport on street as well as off-street parking. How does GAL justify its assumptions for modelled constraints to future off-airport parking, and what elements are required to be reflected in the detailed Parking Strategy to underpin this?
37. Therefore, GAL should highlight how the model accounts for multi-modal surface access journeys, where the majority of the journey is by car, and just the final leg of the journey by public transport. How does the modelling include survey data as to the mode of transport used not just when passengers arrive at the airport, but also how they leave home? This should capture where off-airport parking occurs and how this inflates public transport numbers for different modes immediately around the airport – as well as increase traffic on local roads as car journeys end off-airport rather than use the SRN to access the airport itself.
38. **Lack of parking modelling.** GACC are concerned that the transport modelling, in the way it has been used, may not have taken full account of off-airport parking now, and the potential for this to increase in the future.
39. National Highways (Relevant Representation, p13) note that whilst GAL states additional parking provision would only be provided where there is demand, they note there is no clear modelling or methodology to assess this demand, or targets set to trigger additional parking provision. This is vague. Instead we propose a cap on current parking, rather than the 10+% increase in parking provision, reflecting increased dependence on road transport access in the DCO.
40. **Modelling discounting levels for public transport fares to Gatwick.** Has GAL modelled the impact of different levels of discounting of public transport fares (with and without expanding rail capacity/routes), such as a fixed £10-£50 surface access charge for all tickets being used to subsidise those who travel to the airport by public transport? If not, why not?
41. **Population growth assumptions.** The modal split of passenger journeys to the airport is highly dependent on where passengers live. GAL should set out:
  - ! What assumptions it has made regarding growth in London’s population, as this would tend to generate a modal shift to public transport.

! The extent to which its estimated growth in population flying from London as opposed to elsewhere, and the extent that 'levelling-up' to rebalance the UK economy away from London has impacted its future origin-destination assumptions.

42. **Modelled impact of Strategic Road Network expansion around airport on inducing other traffic.** In addition to encouraging people to drive as opposed to use public transport to travel to the airport, expanding the SRN will induce other journeys to travel by road. The full extent of this increased traffic, from the airport and other traffic, should be considered, including how this in turn will increase local traffic and hinder achievement of local authority Transport Plans.<sup>24</sup>
43. **Modelling electrification of transport.** Please share assumptions made, especially with regard to three aspects. Firstly, the delay in the government's ban on the sale of new diesel or petrol vehicles from 2030 to 2035.<sup>25</sup> Secondly, what assumptions GAL has made around the electrification of heavy duty vehicles, as there still seems to be a lack of policy certainty in this area. Thirdly, how the electric vehicle ownership significantly shifts the relative cost of travelling and undermines the shift to bus and rail unless these are similarly incentivized.
44. **Modelled impact on hospital access and fire engine response times.** East Surrey Hospital is close to the airport and serves around 560,000 residents in the geography around the airport. The transport model highlights increased traffic congestion on local roads, including the A23 which is the main access to the hospital and also key for other emergency services, notably fire and rescue, and police. What impact will the model have on journey times for ambulances to the hospital, and what measures are GAL proposing to address this?
45. **Assumptions mean climate impact worse than that modelled.** Marsden, G. (2023)<sup>26</sup> shows that 72% of the potential ambition set out in the Transport Decarbonisation Plan (2023) has been lost in the Carbon Budget Delivery Plan (CBPD). Yet the National Highways notes that the applicant has used the Transport Decarbonisation Plan (TDP) to represent a realistic worst case. National policy has significantly shifted since this time. National Highways note they would only use TDP as a sensitivity test. National Highways request additional details to demonstrate how their assessment constitutes a worst-case assessment. National Highways were also concerned that use of a higher percentage change in fleet mix could impact the modelling outcomes for air quality as well as greenhouse gas emissions. National Highways note (Relevant Representation, p10) that the current sensitivity tests do not demonstrate a reasonable worst- case scenario of highway impacts and requests a cumulative sensitivity test be carried out. GACC share these concerns.

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<sup>24</sup> Surrey County Council has a Local Transport Plan 4 (2022-2032) [REDACTED]

[REDACTED] East Sussex have just consulted on a draft Local Transport Plan 4 (2024-2050) - <https://consultation.eastsussex.gov.uk/economy-transport-environment/local-transport-plan-4-2024-2050/>.

<sup>25</sup> [https://www.gov.uk/government/news/government-sets-out-path-to-zero-emission-vehicles-by-2035#:~:text=The%20government%20has%20today%20\(28.cars%20from%202030%20to%202035.](https://www.gov.uk/government/news/government-sets-out-path-to-zero-emission-vehicles-by-2035#:~:text=The%20government%20has%20today%20(28.cars%20from%202030%20to%202035.)

<sup>26</sup> Reverse gear: The reality and implications of national transport emission reduction policies. *Centre for Research into Energy Demand Solutions*. [REDACTED]

46. GACC adds that in the TDP high ambition scenario for carbon reductions, road traffic reductions seen during the pandemic are substantially maintained so 2040 road traffic levels are 20bn vehicle miles per year lower than in 2019. However, DfT's own assessment that Covid-19 is likely to be a one-off adjustment to travel behaviour (a 5% reduction in car traffic), suggests that this scenario is only for sensitivity testing, rather than something the DfT is currently basing its policy planning around (Marsden 2023).
47. Marsden, G. (2023) shows that transport emissions *could* still be consistent with the UK's future carbon budgets (limiting to just a 19 million tonnes CO<sub>2</sub>e overshoot against ambitions set out by the Climate Change Committee in the sixth carbon budget) *if* there is a 20% reduction in road traffic levels by 2030 relative to current plans. Overall traffic levels in 2037 would also need to be lower than pre-pandemic levels. Even these would require significant progress in both electrification and the efficiency of the remaining fossil fuel vehicle fleet. This is consistent with Hopkinson et al. (2021),<sup>27</sup> which shows that to align with carbon targets, surface transport requires a 20% traffic reduction by 2030, citing examples including the policy for a 20% cut by 2030 relative to 2019 levels in Scotland.
48. Instead, Gatwick's plans to increase road transport are severely at odds with this. GAL should model scenarios that deliver zero road traffic growth and absolute road transport reductions around the airport.

#### 6.4.4 Modelling of alternatives

49. **Modelling of zero road traffic growth scenarios.** The UK government Transport Committee Report on Strategic Road investment (27<sup>th</sup> July 2023)<sup>28</sup> called on the DfT to "*model and report on scenarios where traffic levels on the Strategic Road Network are a) reduced and b) maintained at current levels, alongside the transition to a cleaner vehicle fleet, in order to assess the potential contribution of demand management to reaching net zero.*" (paragraph 21). A government response is awaited. Given what this Transport committee said, alongside others, to reduce traffic, why is GAL saying that there should be traffic growth on the SRN? GACC request that GAL should at least model a zero road traffic growth scenario, and use it to identify what sustainable transport investment (rail capacity/routes, bus/coach road space allocation/priority and routes, active travel infrastructure/facilities) would be needed to realise this alternative.
50. Highway modelling using the appropriate models meeting Government Transport Analysis Guidance should therefore be presented which demonstrates the effects of alternative scenarios, including ones where all increase in surface transport movements are accommodated by public transport. This should include assessment of the full cost or benefit to local communities presented, including the indirect impact of social and environmental externalities including air pollution, noise and loss of amenity.

<sup>27</sup>Hopkinson, L., Anable, J., Cairns, S., Goodman, A., Goodwin, P., Hiblin, B., Kirkbride, A., Newson, C. and Sloman, L. 2021. The last chance saloon: we need to cut car mileage by at least 20%. Radical Transport Policy Two-Pagers #10. Machynlleth, Wales: Transport for Quality of Life [REDACTED].

<sup>28</sup>[REDACTED]

## 6.5 Local Congestion Impact (including during construction)

51. **Modelling of the increased traffic volumes show unacceptable increases in local journey times (e.g. along the A23 corridor).** A direct result of the weak mode targets and planned increase in car traffic is that additional traffic will concentrate around the airport and cause increased journey times on some local roads. This is an unacceptable impact.
52. The DCO proposes increased traffic on these roads without any mitigation measures.
53. The additional Strategic Road Network capacity proposed would tend to remove the natural deterrent that makes public transport more attractive, so will suck in more local traffic and increase traffic across the wider network. This will increase traffic on local roads surrounding Gatwick, including in Horley and Crawley as well as villages in the surrounding areas.
54. In July 2022 Surrey County Council approved its new Sustainable Transport Strategy, Local Transport Plan 4 (LTP4). This sets out a new hierarchy for road transport of Avoid-Shift-Improve, which prioritises removal of the need to transport, walking and cycling, and public transport to reduce car vehicle-kms across local roads in Surrey. This is a significant policy change for Surrey's Highway Authority, approved around the same time that the Airport published its Surface Access Strategy. Since then Gatwick have changed its surface transport mode shift targets to take its plans even further away from Surrey's LTP4. Gatwick's plans will make it harder for SCC to meet its LTP4 and associated transport carbon reduction targets.
55. Surrey County Council has declared a climate emergency and set ambitious transport carbon reduction targets. GAL could reduce such targets to 'aspiration' and push back local transport decarbonisation plans. Or it could collaborate with local authorities and communities around the airport to vision, plan and deliver significant transport demand reduction which ensures that transition to zero carbon transport is driven by GAL's efforts. Currently GAL proposes to hold back rather than drive surface transport changes.
56. Gatwick Airport's Surface Access Strategy (ASAS) and Travel Plans should be updated and published such that they are fully compliant with this strategy, and explain why they have chosen not to be compliant at this point. This would transform the targets, and overall approach to surface transport for this scheme.
57. The airport's transport modelling show that local roads around the airport, many already unacceptably busy 'rat runs', will have even greater traffic flows based on the DCO plans. SCC (Relevant Representation, 3.5) is concerned that the high-level of traffic on the SRN will increase traffic on local roads, both directly and indirectly. Similarly, Ifield Village Conservation Area Advisory (Relevant Representation) highlight that travel to the airport from the South West is on country roads (Rusper Road, Charlwood Road, Ifield Wood Road and Bonnets Lane) and along Ifield Green.
58. Similarly, ESCC (Relevant Representation, 5) note that GAL needs to mitigate impacts on the local road network including the A22 and A264, which feed into the A23/M23



corridor and measures to reduce traffic through sensitive areas including the Ashdown Forest Special Area of Conservation and along the A22. WSCC (Relevant Representation, 2.6) also highlight the increase in journey times due to a redistribution of traffic from the SRN to local roads, including for emergency response vehicles.

59. RBBC (Relevant Representation, 39) comment that the annualised modal car shift commitment (12.8.10 of APP-037) will have limited effect at driving modal shift to public transport.
60. The increased journey times associated with the overall increase in road transport volumes could also cause some traffic to reroute away from the strategic road network and onto local roads, exacerbating increased delays, noise and disturbance for the local community. This effect should be quantified.
61. The impact of highway delays resulting from the project are not reflected in the modelling of bus and coach demand, therefore their use might be overestimated. This casts further doubt on the accuracy of the mode share estimates and adequacy of the current (somewhat vague) requirements to invest in the upfront establishment and ongoing operation and maintenance of increased public transport provision on routes that run to/from the airport (or indeed other routes, such as additional rail links from London to the South Coast to free up capacity on Brighton Mainline, as discussed elsewhere).
62. **Construction impact.** SCC (Relevant Representation, 3.31-3.37) is concerned about the lack of mitigation of construction traffic impacts, notably around the Longbridge roundabout. This should include alternative pedestrian and cyclist routes. SCC is opposed to the proposed private vehicle access to the South Terminal compound from Balcombe Road, due to its impact on local roads.

## 6.6 Rail

63. **Gatwick plans only limited investment in public transport. Gatwick should reprioritise its surface access investment to sustainable travel, which means public transport for most passengers.**
64. **The project will increase demand pressure on London-Brighton mainline trains, already forecast to become crowded. Modelled future rail capacity assumptions reflect rail industry plans to accommodate rail demand growth without Gatwick expansion to 2029. No increased rail capacity is planned or funded. No ongoing subsidy of passenger travel by rail is proposed.**
65. The most popular mode of travel for passenger access to and from Gatwick airport from London is rail, and Gatwick benefits from being served by the main line between London and Brighton. As noted above, our view is that the surface access mode share targets proposed by GAL for the project are unambitious and should be amended so that there is no growth in car use and all growth in surface access is accommodated by sustainable modes. Inevitably this will mean that a significant share of the additional growth will be carried by rail. Therefore it is a requirement that the rail service being

offered has sufficient capacity to both attract and accommodate the extra demand. This means that the service needs to be reliable, sufficiently frequent and have enough capacity to allow people to travel in comfort including space for luggage.

66. Trains operating on the main line serving Gatwick are already crowded, with passengers needing to stand. GAL modelling shows that crowding will become worse with the project. This is unsurprising as rail capacity improvements are only programmed up to 2029 with no further capacity improvements planned associated with the DCO application. These capacity improvements are intended to accommodate the growth in demand without the project, for example from rising population and jobs elsewhere. Further growth in demand will increase crowding after 2029.
67. While Gatwick has a high capacity rail line serving the station, this can be unreliable and has limited capacity due to junction issues that would require significant investment to sort out. No such investment plans are included in the Network Rail Control Period 7 (CP7) up to 2029 and are also completely excluded from this DCO.
68. This is supported by Govia Thameslink Railway (GTR)'s original response to GAL's consultation that raised concerns regarding capacity of the Brighton-Gatwick-London railway (Brighton Mainline BML). The BML already has significant passengers standing in uncomfortable crowded conditions both peak and off peak and the track is at full capacity. GTR state that additional capacity is required and provided details of off peak crowding. This has not been addressed. GTR note that GAL has failed to engage with GTR Strategic Planning about the concerns raised.
69. GTR note that the plans fail to provide the additional capacity required to accommodate even the current (low) ambition for additional rail passengers and will result in even worse crowding of trains between the Sussex Coast and London than already exists both peak and off peak. GTR state this will risk significant increase of car use and road congestion undermining GAL's ability to reach its target for rail mode share of surface access. TfL also note that high levels of crowding will reduce the propensity to take the train, undermining sustainable mode shift. We share these concerns by GTR and TfL that expanding the highway network but not expanding rail capacity until after the new runway is completed will undermine and actively work against even the meagre mode share targets in the DCO.
70. RBBC (Relevant Representation, 37-38) MVDC (Relevant Representation, 11.8) comment that only minor service frequency improvements are proposed, that these are already planned (2-3 extra peak hour trains and 10 extra off-peak trains per hour) and are separate to the project, primarily on existing routes. They call for rail service improvements to very early morning and late night rail service to the West and East to enable passengers and staff to access the airport in line with the increase in morning and late evening flights planned.
71. GACC's view is that, if the project were to proceed, then it should only be on the condition that sufficient additional rail capacity is provided to ensure that passengers travelling to and from the airport do so without the need to stand or cause other passengers to stand. This should be prioritised over road capacity expansion. For this reason we believe the surface transport access plans set out in the DCO are misguided, and will incentivise a growth in road transport – working against plans to decarbonise

transport in the UK. This DCO should also be conditional on GAL working with Govia Thameslink Railway and Network Rail to carry out a demand and capacity review of the rail system serving the airport with a view to recommending service and capacity improvements.

72. Transport for the South East (TfSE, Relevant Representation) highlight the need for some Brighton Main Line upgrades, including grade separated improvements at Windmill Bridge and Stoats Nest junctions and other junction improvements and platform extensions to increase capacity and remove operating conflicts along this line. These are currently unplanned and are absent from the DCO proposals. MVDC (Relevant Representation, 11.10) add that the applicant underplays the importance of upgrades required to East Croydon Station and the Windmill junction (Selsdon) which are barriers to increasing Brighton mainline capacity, and for which there is no current subsidy (9.4.21 of APP-258).
73. GTR (Relevant Representation) note that for Gatwick expansion to take place it is critical that funding is made available to increase railway capacity between the Sussex Coast, Gatwick Airport and Central London. GTR's response to the DfT's London and South Coast Corridor Study proposed building a new railway between central London, Gatwick Airport and the Sussex Coast to accommodate predicted growth. Similarly, GTR note that the Croydon Area Restructuring Scheme and wider Brighton Mainline Upgrade has been paused with no funding, but even that will not be enough to accommodate the expected additional passengers by mid-century.
74. TfL (Relevant Representation) add that in addition to Network Rail's Croydon remodelling and increased capacity on the Brighton Main Line that a direct service from Gatwick to Kent via Redhill is needed as well as earlier morning trains on additional corridors to match early shifts and flights. TfL seek further clarity by GAL on the modelling of capacity on rail services. This includes the need for more detail of the impact on the Brighton Main Line corridor of baseline growth, including Gatwick demand, in addition to the proposed development – and the ability of this to be accommodated, including at times of perturbation in airport or railway operations.
75. The potential for airport passengers to take the train from such areas should be explored from areas that currently do not, but could have direct and/or far better rail access to the airport. For example, Kent County Council Green and Independent Group highlight the absence of train services between Canterbury West (via Ashford International, Tonbridge and the Medway Valley line) and Gatwick Airport.
76. Concern is expressed regarding the new hotel on the car rental areas adjacent to the railway line. GACC request that confirmation is sought from Network Rail that this would not preclude future expansion of rail infrastructure to accommodate additional rail routes to Gatwick, as discussed above.
77. GAL must explain why subsidy and/or incentives to rail passenger journeys, such as integrated ticketing, has not been considered alongside subsidising airport workers journeys to the airport. Instead of increasing incentives for passenger travel by train this has reduced over the past 20 years:

- ! In 2011, easyjet (the largest airline operating from Gatwick) gave all passengers a 10% discount on Gatwick Express if they purchased rail tickets in advance online.<sup>29</sup>
- ! In 2005, easyjet advertised a 20% discount off Gatwick Express when booking online with them.<sup>30</sup>

## 6.7 Bus and Coach Travel

78. Buses and coaches are also a vital part of the public transport serving the airport. These will also need to be improved to provide the capacity and quality needed to attract passengers and accommodate the growth in demand, if the project proceeds. The proposals offered by GAL are too vague and offer insufficient certainty that operators will provide the services required to achieve the required mode share improvements.
79. There is a need to specifically expand bus routes, including either specifically allocating road space for buses and coaches (and emergency services) and providing priority for public transport (as well as active transport) through changes to junctions.
80. For example, Metrobus (Relevant Representation) notes that the proposals would worsen journey times for buses on most sections (through longer routes, stopping at new signalised junctions and lower speed limits) and not provide any new priority for buses over non-sustainable modes. At present there is no bus priority on the airport campus around North Terminal and buses often get delayed in traffic, have to take a convoluted route, give way to cars and have bus stops a long walk from the terminal. There could be the opportunity to review this and to provide a better location for buses to stop at North Terminal that would improve accessibility to the bus and reduce journey times compared to the current proposal.
81. There is a need to also further extend bus and coach transport over a much wider area, along key routes to the airport for both passengers and staff. Metrobus (Relevant Representation) note it would be beneficial for airport workers if more routes were enhanced to 24-hour operation and more buses served the North Terminal.
82. This should include significant investment in East-West local bus connectivity (e.g. from East Grinstead) and longer-distance routes for airport workers such as from Merstham to the North and inclusive of Ifield/Horsham areas to the South.
83. SCC (Relevant Representation, 3.13) note that bus and coach services fail to meet the target in GAL's 2014 Airport Surface Access Strategy for a second runway (R2 ASAS) and is not supported by any commitment from operators willing to run these services. If not then they would require ongoing subsidy by GAL guaranteed until they become commercially viable. SCC notes that the bus and coach share at Gatwick currently is a fraction of the 20% at Stansted in 2019.

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29 [REDACTED]

84. MVDC (Relevant Representation, 11.4-5) note insufficient public transport provision (in APP-258) for Mole Valley, arguing the need for further public transport to be provided (and funded by the airport) for the north of Mole Valley such as the settlements of Dorking, Ashted and Leatherhead. MVDC note the proposed increase of frequency of bus services is not defined - neither is the extent of funding available. They note that Route 3 via Oxshott is no longer in the DCO application and none of the proposed coach routes would directly serve Mole Valley – highlighting the limitations of that currently proposed.
85. ESCC (Relevant Representation, 10-13) comment that the proposed new route to Uckfield should be at least hourly at all operational times and categorised as a bus not coach service, stopping at local bus stops and extended to Heathfield and integrated to existing services, including the 261 to East Grinstead. There should also be a Forest-Row-East Grinstead-Crowborough service.
86. Metrobus (Relevant Representation) note that the proposal to increase service frequency should ensure that longer distance routes consider existing bus routes over those sections to ensure that services for local communities are not undermined due to some passengers switching to the longer distance routes.
87. ESCC (Relevant Representation) also comment that any demand responsive services should have integrated ticketing and complement/feed into conventional routes (e.g. first/last mile of journey).
88. HDC (Relevant Representation, 3.11) call for service enhancements to the 200 local bus service to Crawley and Horsham and additional public transport to new development areas in Crawley and Horsham. There is also scope to include other existing routes such as the 420 and 460 routes such as improved early morning and evening services.
89. The Kent County Council Green and Independent Group (Relevant Representation) note the need for the Bus and Coach Strategy to be economically sustainable. Previous such coach services have failed; market research should be undertaken to ensure they provide a long-term viable solution.
90. Access to bus stops at Gatwick Airport should also be improved as part of this scheme. The bus stops at the North Terminal could be closer to the terminal and more prominent. The bus stops at the South Terminal would have improved access into the terminal if the two lifts were supplemented with escalators with a power save mode.

## **6.8 Active Transport (Walking, Cycling and Disability Access)**

91. GACC argue that there needs to be a Local Cycling and Walking Infrastructure Plan (LCWIP) to clearly set out the investments needed to improve walking and cycling accessibility and road safety around the airport, including in areas with increased local road congestion and rat-running.
92. To ensure that no one is left behind this should ensure disabled/step free access from across the rail network. For example, MVDC (Relevant Representation, 11.11) notes

proposed increase in Gatwick services on the North Downs line from 1-2 per hour. However, the investment to improve accessibility at Dorking Deepdene station and more innovative solutions to improve accessibility at other stations is not yet proposed.

93. The plans by DCO should be audited to maximise accessibility and ensure disability access for workers and passengers is improved as far as possible. This should at least include: prioritising disabled parking close to terminals (e.g. in B car park which has easy access to Atlantic & Ashdown Houses and both terminals, both also MSCP 3 level 1); consider moving egress point from H car park onto the quieter Eastway and provide elevated route to terminal forecourt; and improving terminal access for those with reduced mobility such as a drop-off zone at the South Terminal.
94. Metrobus (Relevant Representation) noted that the Gatwick Airport bus stops themselves could be upgraded to include an enclosed waiting area to improve the experience and cater for additional users. This should include improved seating that can accommodate disabled bus users.
95. SCC (Relevant Representation, 3.17) considers the active transport provision unsatisfactory and not equating to the active transport Surface Access Commitment mode share targets noting the model output (8.6.16 of APP-258) states that 9-10% of staff journeys within 8km would be active transport, compared to the SAC target of 15% for such journeys.
96. GACC agree with the Crawley Active Travel Forum (Relevant Representation) who note that the current proposals for walking and cycling routes to/from Gatwick are inadequate in that they do not comply with current government policy LTN1/20.
97. The LTN1/20 standard should be audited and improved for routes up to 10 miles to/from the airport. Experience from elsewhere (e.g. the Danish cycle superhighway) indicates that 7-9 mile average commuting distances can be achieved. Gatwick should therefore audit and improve routes to travel 10 miles to/from the airport. It is not clear why GAL appear to have focused on a 5-mile journey.
98. GACC also agree with Mole Valley Cycling Forum that the DCO (and existing development plans) need to be backed by an Active Travel Fund invested by GAL to both commission a Cycling and Walking Infrastructure Plan that integrates with the Local Cycling and Walking Infrastructure Plans for the surrounding areas, and funds its implementation.
99. Specific active travel measures to be included in the Gatwick LCWIP should include:
  - ! 700m additional pavement in Charlwood as highlighted by Charlwood Parish Council;
  - ! Paved access should be provided via Povey junction along Perimeter Road North.
  - ! Improvement to the public footpaths around Longbridge Roundabout and through Riverside Garden Park. This pedestrian access to the Airport is inadequate.
  - ! SCC (Relevant Representation, 3.18) state that the scheme should fully explore further improvements to the Rights of Way network around the airport, noting in particular connectivity needed to Charlwood, Hookwood and Povey Cross.

- ! The significant number of covered cycle parking spaces that are no longer available to North Terminal must be replaced. There used to be about 100 cycle parking spaces here.
- ! GAL should introduce a funded cycle hire scheme at the Airport.
- ! SCC (Relevant Representation, 3.16) call for better cycle links over the Brighton Mainline.
- ! RBBC (Relevant Representation, 41) have previously highlighted support for a new direct North-South cycle route from Horley through Riverside Gardens, over the proposed signalised A23 North Terminal junction leading to the North Terminal (not the more circuitous route proposed by GAL via Longbridge Roundabout). Such a plan would support delivery of the active transport mode share targets.
- ! GAL has proposed to remove the current (poorly maintained) walking and cycling path from the Longbridge roundabout along the A23 towards Gatwick. Instead of removing this path it should be improved. This is (or at least should be) an important link for those cycling from Horley to Crawley, especially in the dark some people will choose not to cycle through Riverside Gardens for personal safety reasons.
- ! The scheme should build greater cycling connectivity around the airport, rather than impact on the national cycle route, NCN21, which passes through the airport. The impact of the DCO application on this, including continuity during the construction period, does not appear to be adequately properly assessed. This is important as the spine route for improving cycling and walking North-South through the airport is part of the long-distance London-Paris cycle route (L'Avenue Verte).

## 6.9 Parking

100. GAL should set out a clear parking strategy, covering on-airport and off-airport parking, which deters unnecessary car travel that could otherwise use sustainable modes whilst avoiding disruptive off-airport car parking. There is no clear rationale for the parking measures set out in the project documents.
101. Metrobus (Relevant Representation) note that the provision of very cheap airport parking (usually provided for free to employees) makes it difficult to get people to give up their car.
102. There should be clear proposals to prevent increased off-airport parking. Sensitivity analysis of the impact of unconstrained (street and commercial) off-airport parking on the surface transport modelling should be completed.
103. In addition, MVDC (Relevant Representation, 11.14) call for more robust car parking proposals to lessen off-site and illegal parking activities, and clarity as to the level of support and specifics of funding to councils for this. GACC call for a detailed parking strategy to be produced and reviewed as part of the DCO examination, to ensure parking matters can be sufficiently explored and resolved. Similarly, RBBC (Relevant Representation, 40) are unclear about what support will be provided to councils implementing additional parking controls, and when.
104. To prevent growth in car trips, there should be no net increase in car parking, taking account of both on-airport and off-airport parking.

105. TfL note that the DCO proposals increase parking spaces by around 7,700, 10% of the total current on- and off-site parking. Similarly, TfSE question this level of increased parking as it conflicts with GAL's forecast increase in passenger movements using more sustainable forms of travel.
106. **EV charging for airport parking and freight transport.** This should be clearly set out in the plans set forward. All airport parking (current and proposed) should be 'EV ready', learning from the recent experience of Luton Airport. This is expected to require some redesign of parking layouts and extent. EV charging for freight transport and operational vehicles such as those servicing the CARE facility, hotels and terminals, as well as on-airport vehicle movements, should be designed to be fully electric with EV charging designed in from the outset. Designs should be safety audited to ensure this can be safely operationalized.
107. The parking strategy should extend to parking enforcement of on-street as well as off-street parking. Parking controls are needed to differentiate airport passengers and workers leaving cars in streets around the airport from resident use to prevent off-airport parking (including nuisance parking in residential streets). We envisage that this will require introduction of residents parking zones or equivalent. This should be fully funded by the Airport on an ongoing basis and include both areas near the airport (e.g. Horley and Crawley) and those that are current and potential hotspots for off-street airport parking including small villages and hamlets around the airport and walking distance around rail stations, and along bus routes, to/from the airport.
108. **Local resident use of Gatwick Airport rail station.** There is a need to ensure that Gatwick does not disadvantage rail access for those living around the airport as more fast trains to London stop at Gatwick – and the airport has started charging £6 for drop-offs and pick ups, including for residents who are dropping off for train journeys as opposed to flights. The Charlwood Society (Relevant Representation) notes that “Gatwick Station is not a possession of the Airport. It existed long before the airport and belongs to British Rail. Local rail users should have free and convenient access to drop off and pick up at Gatwick Station, as in past years. Horley is less convenient as an alternative as it now has fewer fast trains to/from London.”

## 6.10 Freight

109. The DCO outlines plans to significantly increase levels of road freight to accommodate increased levels of airfreight. It is not clear why accommodation of freight by rail is not considered and how this increased airfreight ambition is consistent with UK climate targets, including airfreight in the UK carbon budget (from the sixth carbon budget period (2038-2042)).

## 6.11 Impact on Communities

110. GACC is not convinced by the argument by GAL (paragraph 2.1.2) that the transport infrastructure investment proposed will be a net benefit to local communities when comparing a scenario without the additional access traffic generated by the project with



a scenario with the additional traffic and the proposed investment in roads and junctions.

111. Improvement of walking and cycling routes, and local bus services would particularly benefit airport staff. This would help those who do not own a car and where bus travel is currently difficult due to hours worked.
112. It is notable that whilst specific details have been presented in relation to the highway improvements, in contrast, there are far fewer details of the public transport and walking and cycling improvements that would be delivered. It is noted that the "Airport Surface Access Strategy (ASAS) was not previously consulted on by GAL in their 2021 or 2022 consultations, which mean that they lack meaningful local stakeholder input.
113. The GAL consultation of 2022 noted that the "Airport Surface Access Strategy (ASAS) will be produced as part of the DCO submission, that GAL is part way through analysis of the proposals and that these will be discussed further with local authorities and key stakeholders." The ASAS was published in October 2022 but does not sufficiently set out how the Surface Access Commitments in this DCO will be delivered and such detail is not reflected in the DCO documentation. The ASAS and DCO should be much clearer with regard to what is required to happen for passengers and staff to make the shift from car to public and active transport modes. It cannot be assumed that the ASAS, on its own, will deliver the modal shift envisaged. There is no evidence provided of any attempt to understand the barriers of staff and passengers to not using their private car to travel to the airport. This needs to be understood such that there is a stronger strategy to enact a modal shift for the travel to/from Gatwick Airport, in line with Surrey County Council's new Local Transport Plan 4.<sup>31</sup>

## 6.12 Investment

114. **Substantial investment is required to finance the additional rail capacity and prioritise/designate road space for bus travel.** Without this investment the increased road traffic, particularly on local roads, will discourage the envisaged modal shift to sustainable modes.
115. MVDC (Relevant Representation, 11.6) notes that there are no plans to extend the current Local Commuter Zone scheme in the DCO.
116. **The Sustainable Transport Fund and Transport Mitigation Fund and financial support for Parking Control in the DCO are not clearly defined.**
117. These need both capital investment and revenue investment elements.
118. Capital investment must include i) rail capacity enhancement and bus priority measures (unless separately funded elsewhere in the DCO); ii) investment to deliver a local cycling and walking infrastructure plan for areas around the airport within walking

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<sup>31</sup><https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan>

and cycling distance of the airport, and areas affected by rat-running; and iii) establishing parking enforcement regimes for both on- and off-street parking (unless separately funded elsewhere in the DCO).

119. Revenue funding must include i) subsidy of public transport journeys – including by rail, coach and bus – for both passengers and workers travelling to and from the airport to successfully incentivise the modal shift away from car travel; ii) implementation of parking regimes including officer time and paying for residents parking permits or similar. Revenue funding should be on an ongoing basis to ensure the modal shift is sustained, not just for the minimum of five years set out in the DCO.
120. SCC (Relevant Representation, 3.9) are concerned that the financial support for bus and coach services, to support parking controls, use of the sustainable travel fund and provision of the transport mitigation fund remain unspecified.
121. TfL (Relevant Representation) state that serious consideration should be given to how a sustainable transport fund of a suitable scope and quantum in the DCO, would, combined with more ambitious mode share targets, help drive substantial mode shift. They also note the importance of securing a substantial sustainable transport fund sufficiently broad in scope which should help improve local bus services and active travel infrastructure.
122. National Highways (Relevant Representation, p7) notes that GAL's approach to securing its proposed Transport Mitigation Fund is unclear and that it is difficult to see how securing this via the Section 106 would secure necessary interventions on the Strategic Road Network. GAL should therefore define the scope of the Transport Mitigation Fund, the level of commitment within it, thresholds that would trigger activation, timescales in which to complete actions as a result of activation and parties to be consulted and to act as the approval body.
123. Finally, CBC (Relevant Representation, 14.2, xi) highlights concerns that GAL's financial contribution to the sustainable transport fund might not keep pace with passenger growth as it's partly linked to the number of parking spaces, which are growing at a much lower rate than passengers. GACC are concerned that GAL has not evidenced how this might be in any way sufficient to ensure that even the current mode share targets are met and sustained.

### **6.13 Additional Points Arising from Issue Specific Hearing 4**

124. It is unclear why GAL has produced this particular transport plan. What objectives were GAL trying to meet, what ranges of alternative transport plans were tested and what criteria were used to assess the alternatives? Was a no car growth scenario examined and tested and, if so, why was it rejected? If not, why was this not considered, with expenditure directed to improve rail and bus/coach access rather to expand overall highway capacity?
125. Why has GAL chosen mode share targets that allow car growth, and a parking strategy that includes additional car parking spaces? Why has GAL put forward a

transport strategy that includes major highway changes that increase highway capacity and also has increased the supply of car parking? Would a lower car growth strategy remove the need for the major highway works included with the project and release funding that could then be applied to improved sustainable transport measures?

126. Network Rail noted that Gatwick rail station capacity improvements were designed to accommodate demand up to 2036 and did not include the additional passengers associated with the Northern Runway Project. This throws doubt on the ability of Gatwick station to accommodate the levels of demand resulting from the project. What operational strategies would be implemented on occasions when the station became overcrowded and what impact would these have on train services?

## Section 7. Climate Change

### 7.1 Summary

1. The submission by GAL understates the increased carbon emissions associated with the proposed expansion of Gatwick Airport, and underplays their significance. This DCO would clearly have a material impact of the ability of the UK to meet its carbon reduction targets, and future carbon budgets. If expansion were permitted Gatwick alone would be responsible for over 3-5% of the UK's sixth carbon budget, with or without Jet Zero mitigations. Approval would require government to ignore the Climate Change Committee's 2023 Progress Review recommendation to not permit any airport expansion without a UK-wide capacity-management framework being in place.
2. Planning must consider significance of emissions from all airport expansions not just on a case-by-case basis. Significance should be assessed against the 1.5A C compliance trajectory as in Institute of Environmental Management and Assessment (IEMA) guidance (Assessing GHG emissions and their significance, 2022).
3. GAL should be required to assess the cumulative impact of its plans against the internationally accepted 1.5A C limit on global temperature increase and the UK government's legal requirement to limit greenhouse emissions to net zero by 2050. Gatwick Airport needs to explain how expanding one of the hardest to decarbonise sectors of the economy is consistent with the radical decarbonisation that is required across all sectors of the UK economy to meet the net zero target.
4. GAL must explain why it believes it is acceptable to expand to 80 mppa, which is inconsistent with the Aviation Strategy: Making Best Use of Existing Runways (2018). It is not acceptable to simply assume later Jet Zero reductions can be achieved within climate limits.
5. GAL's submission should include all of the greenhouse gas impacts of flying (e.g. including non-carbon aspects such as contrails that are currently omitted) and the overall impact of airport expansion on the climate (including inbound international flights which will increase carbon emissions overseas). It is disingenuous to treat these as zero, or assume that all Jet Zero assumptions can be achieved, without any evidence: both are in breach of the Precautionary Principle and IEMA guidance.
6. The carbon emissions from additional surface transport journeys are not insignificant, and must be assessed separately against both national road sector targets and policies and Surrey and Sussex transport plans and climate strategies.
7. GAL's plans to reduce embodied carbon from construction should be clearly set out, beyond the Climate Action Plan (CAP)'s high-level target currently included. The CAP should be expanded to include full surface access and flight emissions. GAL must set binding limits to constrain and reduce all these GHG emissions.

8. In conclusion, this plan to significantly expand Gatwick Airport, its flights, and its surface transport, will significantly increase greenhouse gas emissions. This will have a significant, negative, impact on the ability of the UK government to deliver its Net Zero strategy, stay within its legally binding carbon bindings and meet its international climate commitments.

## 7.2 Significance of carbon emissions of GAL's plans against UK carbon budgets underplayed

9. The proposed increase in carbon emissions at Gatwick Airport, including that claimed to sit within the remit of this planning application are very significant. The proposed development, increase in flights and associated surface transport will have a significant material impact on the ability of the UK to meet its climate targets. This DCO application sets out GAL's plans for the largest proposed increase in aviation emissions in the UK since the government's Climate Change Act was enacted (2008). The Climate Change Act was strengthened in 2019 with a commitment to achieve 'net zero' by 2050.<sup>32</sup>
10. Gatwick Airport is already the second most significant airport in the UK in terms of greenhouse gas emissions after Heathrow. Heathrow is the currently the second highest carbon emitter globally in terms of airports,<sup>33</sup> and the largest single carbon emitter in the UK, including the emissions from flights attributed to the airport.<sup>34</sup> GACC disagrees with GAL's claim that its plans to make the second most significant climate impacting UK airport as large as Heathrow, which is the largest UK climate emitter and joint second highest globally, is *insignificant* (APP-041, paragraph 16.9.67).

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<sup>32</sup><https://www.legislation.gov.uk/ukpga/2008/27/section/1>.

<sup>33</sup>Steadman, Shandelle and Pickard, Sam (2024) Airports, air pollution and climate change. Policy Brief. ODI, London.

<sup>34</sup>Heathrow Airport's total carbon footprint, including that from flights is at least 50% more than the largest point source emitter, Drax Power Station (12.1 MtCO<sub>2</sub> in 2022).

**Table 2** The 20 airports that generated the most CO<sub>2</sub> emissions, NOx and PM<sub>2.5</sub> in 2019

Rank	Total carbon emissions			Total air pollution			
	Airport name	Total CO <sub>2</sub> (MtCO <sub>2</sub> )	Passengers / Freight	Airport name	Total NOx (tonnes)	Airport name	Total PM <sub>2.5</sub> (tonnes)
1	Dubai	20.1	83%/17%	Dubai	7,531	Dubai	71
2	London Heathrow	19.1	85%/15%	London Heathrow	5,844	Atlanta Hartsfield-Jackson	60
3	Los Angeles	18.7	82%/18%	Beijing Capital	5,736	Beijing Capital	54
4	Hong Kong	17.4	65%/35%	Hong Kong	5,678	Shanghai Pudong	51
5	New York John F. Kennedy	14.7	88%/12%	Tokyo Haneda	5,172	Guangzhou Baiyun	49
6	Seoul Incheon	14.4	72%/28%	Seoul Incheon	4,491	Frankfurt	45
7	Paris Charles de Gaulle	14.2	81%/19%	Singapore Changi	4,462	Singapore Changi	41
8	Frankfurt	13.9	76%/14%	Bangkok Suvarnabhumi	4,228	Seoul Incheon	41
9	Shanghai Pudong	13.8	67%/33%	Shanghai	4,223	Sao	40

**Heathrow Airport was the second most significant climate impacting airport in 2019 (Steadman and Pickard, 2024).**

11. GACC concur with the Aviation Environment Federation (AEF)'s relevant representation that notes that there is a high risk that the carbon dioxide emission reductions from airport, relied upon by GAL in its forecasts, will not be achieved. There is nowhere in Government policy stating that climate change should be excluded from (i.e. given zero weight) to planning considerations in the DCO process. Therefore, GAL should agree a binding set of annual emission caps in line – at least – with the Government's proposed CO<sub>2</sub> trajectory for aviation. To address this GACC propose a cap on overall greenhouse emissions, including for all flights from the airport, increasing from current levels is introduced for Gatwick, to ensure that future aviation emissions reduce in line with the UK carbon budgets (see recommendations in Sections 2 and 6 below).

12. The inclusion of aviation (and surface transport) emissions should be reflected in the 2040 zero emissions airports target.<sup>35</sup> This target currently includes a commitment for all domestic flights to be zero carbon by 2040. The call for evidence to support this target sought data to show that it is technically and commercially feasible for all airports to be zero carbon, but did not include flights or surface transport.<sup>36</sup> The response to the consultation and final policy is awaited.

13. In contrast, the applicant's comparison of the emissions of the Project against national carbon budgets is inappropriate and misleading. GAL concludes that:<sup>37</sup> "Given the overarching policy framework for the aviation sector, and the small contribution of other non-aviation emissions, it is concluded that for decision-making purposes (reflecting

<sup>35</sup><https://www.gov.uk/government/calls-for-evidence/2040-zero-emissions-airport-target/2040-zero-emissions-airport-target#:~:text=In%20our%20Jet%20Zero%20Strategy,the%20right%20level%20of%20ambition.>

<sup>36</sup>

-16.9.97.

the guidance contained in the ANPS) the Project is **not so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets, including Carbon Budgets.** On this basis the overall assessment concludes that the Project has a **Minor Adverse Not Significant impact.**” [Emphasis in original]

14. This way of comparing emissions towards an economy-wide figure is challenged on the following basis:

! Whole economy emissions are necessarily of a much larger scope than those from a single project, so comparing towards a national carbon budget could be used to justify many individual projects, which could collectively be significant. However, as noted above this is the most significant aviation project since the UK established its legally binding carbon reduction commitments. The importance of addressing significance within a sector has been considered elsewhere.<sup>38</sup>

! There is no standard as to how many tonnes of carbon or what proportion of economy-wide emissions would be a “significant impact.”

! The use of the whole economy as the denominator is likely not applied consistently throughout the DCO application. For example, it is not concluded by GAL that because Gatwick supports only a relatively small percentage increase in jobs or GDP that the expansion is considered insignificant in these regards. In fact, the relative increase in carbon emissions is far greater than the increase in either employment or GDP.

! The significance of the airport emissions, surface transport emissions – and outbound flight emissions – should also be assessed locally. The notion that these are not considered local emissions is also challenged in the practice of preparing carbon reductions and targeting their reduction, including for West Sussex, the area within which Gatwick Airport lies.<sup>39</sup> Local carbon budgets have been prepared to support this by the UK’s Tyndall Centre. The Tyndall Centre calculated a fair carbon budget for Crawley,<sup>40</sup> as 3.8 million tonnes **for the rest of this century.** The additional emissions calculated for this Gatwick extension would exceed this budget in 1-2 years – increasing emissions at a time when both local and national emissions must be reduced.

! Gatwick Airport’s proposed future emissions trajectory increase the passengers and flight numbers above that proposed for UK aviation as a whole, so will increase overall carbon emissions associated with international flights when these are included in the UK’s carbon budgets from 2033–2050.

15. **GACC assert that the proposed increase in Gatwick’s aviation emissions is significant.** The UK is already responsible for a disproportionate amount of air travel, so this is an issue of climate justice. In 2018 the UK was the country with the largest number of international passengers, with UK passport holders accounting for one in twelve of all

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<sup>38</sup>The importance of addressing significance within the UK roads sector was previously made by Professor Phil Goodwin, Emeritus Professor of Transport Policy at the UCL. [REDACTED]

<sup>39</sup><https://www.eastsussex.gov.uk/environment/climate-change-action-in-east-sussex/climate-emergency-plan#5.%20The%20Council%E2%80%99s%20Carbon%20Targets>

<sup>40</sup><https://carbonbudget.manchester.ac.uk/reports/E07000226/>

international passengers.<sup>41</sup> Of these flights, 84% were for holidays and visiting families.<sup>42</sup> Increasing airport capacity will generate further demand. This conflicts with the urgent need to reduce greenhouse gas emissions, which requires demand to be managed and reduced. If aviation is allowed to continue, the significance of aviation's carbon footprint will continue to ramp up. Gatwick's aviation alone is predicted as 5.725 Mt CO<sub>2</sub> in 2038 (compared to 7.061 Mt CO<sub>2</sub> in the 2021 consultation).<sup>43</sup> This amounts to around 4-5% of the UK's carbon budget in 2038 (depending on whether the assumptions that enabled the 2021 figure to be reduced by 20% hold).<sup>44</sup> Including the government's recommended uplift of 1.7 for non-CO<sub>2</sub> impacts<sup>45</sup> (see section 4 below) would increase these percentages by 70%. In contrast, GAL's estimate (including Jet Zero assumptions) that the Project will contribute to about 3.1% of the national carbon budget from 2033-2037 appears low.<sup>46</sup>

16. Finally, significance of the project should be clearly assessed in terms of the impact on UK carbon budgets and the UK's agreed Nationally Determined Contributions to reduce economy wide greenhouse gas emissions by 68% by 2030, compared to 1990 levels.<sup>47</sup> The Project's full carbon impact - including surface transport, flights, construction and operational carbon emissions - should be compared against the UK's national carbon budget, noting that the Government has committed that the sixth carbon budget (2033-2037) *will* include the UK's share of international aviation and shipping emissions.<sup>48</sup>

17. The UK's Updated 2030 Nationally Determined Contributions commitment, agreed at the COP26 climate talks in Glasgow, sets the government's target to reduce emissions

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42 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/870647/tsgb-2019.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/870647/tsgb-2019.pdf)

43 <sup>43</sup>To put the information in this appendix into context; the Sixth Carbon Budget estimates that, to reach Net Zero would require "average annual reductions in UK emissions of 21 MtCO<sub>2</sub>e".

44 in tab: Advice report Ch9&Ch10 (see balanced net zero pathway for future years). This is based on assuming that the carbon budget for the year of 2038 is no greater than the approved 152.4 MtCO<sub>2</sub>e/year for 2037, which underpins the 2033-2037 sixth carbon budget. However, 2038 would be the first year of the seventh UK carbon budget (2038-2042). Assuming that emissions are reduced further to the balanced net zero pathway for 2038 this would give an annual carbon budget of 137.4 MtCO<sub>2</sub>e/year. Either way Gatwick would account for 4-5% of total UK emissions in 2038, depending on whether the additional assumptions in the Jet Zero strategy are delivered, or not. However, assuming the budget is the average of the net zero pathway for these five years, then the budget 2038 would be 105.2 MtCO<sub>2</sub>e/year, so Gatwick's emissions 5-7% without radiative forcing or 9-11% with radiative forcing included. And the additional emissions of all flights created due to planning consent (considering in-bound and outbound flights) then the decision to expand Gatwick would account for between 11% and 25% of UK emissions in 2038. Certainly not insignificant.

45 <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023> (see 2023 download, Tab: Business Travel - Air).

46 <sup>46</sup>Table 16.9.13

47 <https://assets.publishing.service.gov.uk/media/633d937d8fa8f52a5803e63f/uk-nationally-determined-contribution.pdf>

48 <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>



by 45% from 2019 levels by 2030.<sup>49</sup> The permission to expand Gatwick *should not* make it more difficult for the UK government to meet this international commitment. The UK is currently not on track to meet this target,<sup>50</sup> which is noted as ambitious by some leading researchers.<sup>51</sup> The aviation sector is currently outside of the UNFCCC framework for carbon reduction. The UN Emission Gap Report (2022)<sup>52</sup> finds that the international community is falling far short of the Paris climate goals, with no credible pathway to 1.5A C in place.<sup>53</sup>

18. From 2033 the UK has committed to include all aviation emissions within its national carbon budget. Therefore, the total amount of emissions from aviation from 2033 to 2050 should be limited. However, this application proposes an emissions trajectory for Gatwick that exceeds that modelled nationally in the Government's Jet Zero strategy during the 2030s (AEF, Relevant Representation). Similarly, Transport for London (Relevant Representation) note that whilst the Government's Jet Zero policy requires a 50% reduction in aviation emissions on 2019 levels, projections for the Project scenario for Gatwick are for a 27% reduction – so would fail to meet the obligations set out in Jet Zero. On this basis alone GACC dispute GAL's claim that the increase in carbon emissions proposed by expanding Gatwick Airport's operations is insignificant. GACC consider that increasing overall aviation emissions above the national emissions pathway alone will have a material impact on the ability of the Government to meet its carbon reduction targets, including carbon budgets (ANPS, paragraph 5.82).

19. GAL should be required to justify why they believe they should be permitted to increase the 'area under the emissions-time graph' – i.e. the cumulative greenhouse gas emissions anticipated by the UK aviation sector. Furthermore, GAL should be required to explain how it envisages the UK government requiring greater constraint to the numbers of flights at other UK airports to reduce their emissions to a greater extent than Gatwick, to accommodate Gatwick's future growth?

20. The other reason why the carbon emissions of future flights have been apparently dismissed as insignificant in the DCO application is that the amount of aviation carbon emissions associated with the Project has been disowned or under-estimated in various ways. These are all disputed as follows:

- ! GAL should not be allowed to disown its aviation emissions as instead part of national policy: these emissions would not exist if the project did not allow more planes to take off and land.

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<sup>49</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/110942/9/uk-nationally-determined-contribution.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/110942/9/uk-nationally-determined-contribution.pdf).

<sup>50</sup>Confidence on meeting the 2030 NDC target has decreased in the past year: [REDACTED].

<sup>51</sup> [REDACTED]

<sup>53</sup>Full implementation of unconditional NDCs is estimated to result in a gap with the 1.5°C scenario of 23 GtCO<sub>2</sub>e. See [REDACTED] page 7.

- ! GAL's argument that much of the future increases in carbon emissions are not associated with this project as they will take off and land on the existing (not the new Northern runway) should be disregarded.
- ! GAL should not be allowed to discount some of the actual emissions of flights that are part of the European Emission Trading Scheme (ETS) or sit under Corsia.
- ! GAL should not reduce its future aircraft emissions on the basis of assumptions made in Jet Zero, which may or may not be realised.

**7.2.1 Firstly, GAL should not be allowed to disown its aviation emissions as instead part of national policy: these emissions would not exist if the project did not allow more planes to take off and land.**

21. The notion that Jet Zero is sufficient to achieve predicted reductions in aviation emissions is challenged above. The full impact of all flights should be considered within the scope of this Project, and assessed fully as part of the DCO's Environmental Impact Assessment. The rationale for including these emissions within the remit of the Environmental Impact Assessment, therefore within the scope of 'The Project' has been challenged in the relationship between oil extraction and oil burning in the case R (on the application of Finch on behalf of the Weald Action Group) (Appellant) v Surrey County Council to the Supreme Court, case ID 2022/0064 (21 June 2023), for which the ruling is awaited.<sup>54</sup> The same relationship between airport expansion and aviation fuel burnt in additional flights should be considered in this DCO. If Gatwick Airport was not to be expanded then the additional flights would not take place, so there is a direct causal link to this planning application.

22. GAL states that its assessment does not include emissions from inbound flights, although these would change as a result of the project. However, this is justified on the grounds that it is consistent with the emissions accounting methodology underpinning the carbon budget where UK international aviation emissions are reported only for outbound international flights. GAL cites reports from the Climate Change Committee and BEIS showing that only outbound emissions are considered.<sup>55</sup>

23. However, while this is the case for how greenhouse gas emissions are reported for the UK, the proposed Gatwick expansion will result in additional inbound flights as well as the outbound flights. The inbound domestic flights will be reflected elsewhere in the UK carbon budget (in emissions at other airports). The inbound international flights will be reflected in carbon emissions for other countries. Therefore, in considering the overall significance of GAL's expansion plans, the carbon emissions from both inbound and outbound flights should be included in assessing the Project's overall climate impact – i.e. its impact on international as well as national climate targets.

25. This appears to conflict with the Infrastructure Planning Regulations 2017 cited in APP-041, paragraph 16.2.2, where the "significant effects of development" includes the magnitude of GHG emissions and the "impact of the project on climate". The full impact

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54 [REDACTED]

55 APP-251, footnote 153.

of the project, including the full impact of all of the increase in flights, should be included in this assessment.

26. The UK government objective in The UK Aviation Policy Framework (Department for Transport, 2013) was stated as to: *'ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions'* (APP-041, 16.2.19). The DCO would significantly **increase** global emissions, therefore is in serious conflict with this objective.

**7.2.2 Secondly, GAL's argument that much of the future increases in carbon emissions are not associated with this project as they will take off and land on the existing (not the new Northern runway) should be disregarded.**

27. This is because the main technology changes (as noted in Jet Zero as improving aircraft efficiency) are a reflection of increases in aircraft size – which will increase both passenger numbers and emissions. This increase is *only made possible with the changes and relocation of the emergency runway - alongside increased airport facilities - taxiways, hangers, piers, terminal capacity, external highway changes, hotels, parking facilities, and so on.* So would not be possible without this project going ahead.

28. This is linked to the false claim by GAL that this DCO application is simply 'Making Better Use of Existing Runways' so aligned with current government policy. It is not, for if that was to be the case then this would a) remain a one runway airport not change to a two runway airport; b) no physical works to build a new runway (the existing emergency runway cannot be used – infrastructure changes are required) and c) there would be no need for this planning application. The project baseline should be the current situation – for all aspects of the project, including its climate impact.

**7.2.3 Thirdly, GAL should not be allowed to discount some of the actual emissions of flights that are part of the European Emission Trading Scheme (ETS) or sit under Corsia.**

29. GAL argue that as the majority of flights are within the EU these should be discounted because they are traded with the European Emissions Trading Scheme, which is aligned to net zero. GACC disagree. The airport's should determine and report the actual greenhouse emissions that are predicted to occur, and not apply discounts for offsetting these emissions. While the UK Climate Change Committee does allow for emissions addressed by the ETS to be discounted, they have advised that compliance with CORSIA under its current form should not be allowed for in carbon accounting as the scheme is much weaker than the ETS. However, the UK Climate Change Committee recommend that aviation emissions are agreed to be capped within the UK's carbon budget, as discussed above. Therefore, there is still a need to manage demand and supply together, as set out above.

**7.2.4 Finally, GAL should not reduce its future aircraft emissions on the basis of assumptions made in Jet Zero, which may or may not be realised.**

30. This is set out further in section 2 below.

### 7.3 Over-reliance on Jet Zero to deliver decarbonisation of aviation

31. It is not credible to rely on different efficiency levels and assumptions on technology improvements, as set out in the government's Jet Zero strategy, without providing evidence as to what has changed since the government's last aviation forecasts made three years ago or the Independent Committee on Climate Change's sixth climate budget analysis published in December 2020.
32. Also, it is not clear from government's draft Jet Zero policy what technology changes have emerged since 2018 that enables future aviation carbon emission estimates to be cut so substantially as to accommodate not just the stronger carbon reduction targets (shift from 80% to net zero greenhouse gas emissions by 2050, and to limit temperature increase to 1.5A C instead of 2A C) let alone condone further aviation expansion.
33. As a result of these assumptions, the increase in greenhouse gas emissions associated with the Project is predicted have reduced from around 1MtCO<sub>2</sub> by 2050 to 0.513 MtCO<sub>2</sub> in 2050 (and additional emissions each year up to and beyond this date).
34. In addition to these assumptions the way SAF is calculated to reduce emissions is incorrect. While kerosene emissions are measured as 'tank to wake' emissions (emissions associated with burning fuel in the aircraft alone), the government's Jet Zero strategy considers that carbon savings from so-called Sustainable Aviation Fuel (SAF) include savings due to carbon sequestered from the production (which varies depending on the source of SAF). For transparent and consistent reporting in its Environment Assessment (ES) GAL should either omit inclusion of the potential well-to-tank carbon savings of SAF fuel or include the well-to-tank emissions of kerosene in the ES. Mid Sussex (RR) highlights this, calling on kerosene's well-to-tank emissions to be included in the ES, to be compliant with the GHG Protocol Corporate Accounting Standard and UK Government's carbon accounting methodology. They note that, *"This would increase GHG emissions associated with aviation by 20.77%. In addition, a conversion from CO<sub>2</sub> to CO<sub>2</sub>e for aviation emissions would result in a 0.91% increase in all aviation emissions."* These changes would ensure a consistent approach is made to assessment in the ES.
35. Gatwick, the UK's second largest airport, should not be able to be assessed as to whether it can expanded unless the assumptions on future technologies in its Jet Zero strategy, still subject to two legal challenges, are properly justified and tested.<sup>56</sup>
36. GAL's carbon emissions estimates are based on Jet Zero, the Government's strategy for decarbonising the UK aviation sector.<sup>57</sup> However, Jet Zero is based on highly optimistic assumptions – significantly more so than earlier forecasts. There is a significant risk that these assumptions do not hold out, or take longer to occur – both of which would increase future carbon emissions attributed to this planning application. This

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56<sup>th</sup> [REDACTED]

57<sup>th</sup> Paragraphs 16.2.25-16.2.26.

includes the reliance of Jet Zero’s “High Ambition” scenario:<sup>58,59</sup> For example, Robin Riedel (McKinsey) commented that 2050 is too soon for R&D on SAF to be delivered at scale and is likely to just lead to overall expansion in aviation, not reduce its overall carbon impact.<sup>60</sup>

37. UK ETS prices are to rise to £150/t in 2030 and £378/t in 2050; it is currently around £36/t<sup>61</sup>. This low price appears to be because permits have been allowed to be retained post-Covid, so prices are at lower value than that set out in Jet Zero.

38. The current situation for long-haul flights is even less promising. International routes are subject to CORSIA rules. The way that the Jet Zero demand constraint on long-haul flights might be met is even harder to envisage as CORSIA currently utilises a voluntary offsetting scheme that is scheduled to end in 2035 and does not align to the Jet Zero carbon price or have an agreed mechanism for it to increase in future. So, it is unclear how CORSIA carbon pricing might rise to £378/t by 2050, when it is currently has a voluntary offset scheme valued at around \$3-5/t.<sup>62</sup> Furthermore, the UK has no power to ensure that the CORSIA scheme does in fact become more rigorous after it is currently due to end in 2035, or propose any backstopping policies in the case it is unsuccessful. The modelled pricing of the SAF inclusion in fuel mix appears to be based on the Jet Zero High Ambition scenario without any justification, or sensitivity analysis. Advocates for SAF hope that its price will become competitive as it is scaled-up – but no evidence has provided to support this assertion, and the current low/failing current price of carbon (October 2023), in part due to the government’s other policy interventions announced this autumn, make delivering this even more difficult. Therefore, it does not look like the high carbon price, on which the Jet Zero assumptions are based, will be realised. **These assumptions, together with the modelled pricing of the SAF inclusion should be shared. The anticipated impact of SAF on overall fuel costs should be clearly set out, and the impact of this on passenger and freight demand modelled.**

39. A highly ambitious projection for fuel efficiency improvements of 2% p.a., which the DfT itself regards as an ‘optimistic, nominal’ scenario. According to research that the DfT cites, from 1960–2008, annual fuel efficiency improvement was only 1.5% p.a.<sup>63</sup> The Government appears not to have any policy proposals to address this gap between past

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<sup>58</sup>Scenario 2 of four scenarios, which are the baseline (scenario 1), and the “high ambition scenario” with breakthroughs on SAF (scenario 3) and on Zero Emission Aircraft (scenario 4).

<sup>59</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1096929/jet-zero-strategy-analytical-annex.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1096929/jet-zero-strategy-analytical-annex.pdf), see figure 3.

<sup>60</sup> [REDACTED]

<sup>61</sup> [REDACTED]

<sup>62</sup> [REDACTED]

<sup>63</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1002163/jet-zero-consultation-evidence-and-analysis.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002163/jet-zero-consultation-evidence-and-analysis.pdf), paragraph 2.3.

and current evidence and future target themselves. Chatham House note that 0.8% of this annual efficiency improvement (every year until 2050) is from 'operational and air traffic management measures'.<sup>64</sup> **GAL should consider the slow fleet transition as the most appropriate rate of uptake of new aircraft. The impact of lower efficiency improvements both in the near and longer term (Appendix 16.9.4 notes that just the 2% high ambition scenario from the Jet Zero strategy has been considered beyond 2038) should be set out.**

40. An uptake of zero emission flights (e.g. electric and hydrogen aircraft) of 5% by 2040 and 27% by 2050, which is ambitious particularly given that the EU has not set any targets on zero emissions flight uptake. GAL have forecast future ATMs and provided data on short, medium and long haul. GAL's Future With Project Emissions from Aviation (Slow Fleet Transition) (APP-194, Table 6.1.2) is modelled to peak at 6.365 mTCO<sub>2e</sub> in 2032 (APP-194, Table 6.1.2). This is an increase from 4.596 mTCO<sub>2e</sub> (previous peak in 2019). This is an increase of 1.769 mTCO<sub>2e</sub>. However, GAL's assumptions regarding the size and flight distances for these zero emission aircraft is not clear (APP-194, Table 3.1.2). Also, it is unclear why GAL set out emissions for 2050 for the future with-project emissions from aviation (APP-194, Table 5.3.1) and future with-project emissions from aviation (slow fleet transition) (APP-194, Table 6.1.2) have the same forecast emissions by 2050. **GACC request that GAL provide set out the difference in emissions between 2023 and 2050 for these two scenarios modelled, or justification as to why they are considered the same.**

41. The average size of aircraft that represent the 0.83% of ATMs being zero emission aircraft by 2035, 5% by 2040 and 27% by 2050 should be set out – it is not clear whether this is modelled as being first for small planes travelling short distances, as might be expected. **GACC request that details are provided as to how GAL's the assumptions regarding plane size and route length contrast with those in the Jet Zero modelling.**

42. **Impact of difference between UK and EU SAF targets.** A target of SAF use of 10% by 2030, which is almost double what the EU has proposed in 2030 (6%), whereas the target of 50% by 2050 is notably lower than the what the EU is targeting (70% by 2050). However, while it may be easy to declare targets the way in which different feedstock are to be sourced (with UK plans for five SAF plants by 2025 already off track) and severe global supply constraints. **GACC request that the level and date for peak increase be clearly set out with and without each of the three main sets of assumptions that have been made: uptake of zero emission aircraft, transition to more energy efficient fleet, and SAF.**

43. However, even with these very optimistic assumptions. Jet Zero predicts that 37% of total aviation emissions reductions needed by 2050 will still come from offsets.<sup>65</sup> The remaining scenarios (high ambition with breakthrough on SAF/ zero emissions aircraft)

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64. [REDACTED]

65 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1096929/jet-zero-strategy-analytical-annex.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1096929/jet-zero-strategy-analytical-annex.pdf), see figure 4, 'abatement outside aviation sector'.

are each described by the DfT as “speculative, extremely ambitious scenarios.”<sup>66</sup> Given the optimistic, and uncertain, nature of the Jet Zero projections, GACC request that sensitivities to its carbon projects are produced to show the impact on emissions when a less optimistic scenario is assumed. GACC note that targets for aviation efficiency and SAFs have been shown to be unreliable in a recent report commissioned by Possible.<sup>67</sup>

**44. GACC do not consider that the ‘high ambition scenario’ is the most appropriate scenario for GAL to compare the Project’s impacts against, for the reasons stated above. GAL should, as an absolute minimum, provide a sensitivity analysis for different rates of roll-out of zero emission aircraft, SAF and fleet transition (including slower than that modelled in later years) should be considered, with up-to-date justification for best and worse case scenarios such that the airport is not seen to be over-estimating emissions reductions that might occur which are entirely outside its control.**

**45. GAL should also set out how the 0.8% annual improvements to operational and air traffic emissions for the full air flight emissions to/from Gatwick are planned to be realised by the airport, including through the Project. In addition, GACC request the way in which fleet improvements are anticipated for airlines served by Gatwick to be set out, and contrasted to the raw data from the Jet Zero Strategy that underpins its changing fleet composition (noting that this is not publicly available for GACC to scrutinise)<sup>68</sup>.**

46. In the same way that the robustness of the current Surface Access Commitments (SAC’s) was questioned by National Highways in ISH4 to ensure it would be complied with GACC questions the extent to which Jet Zero’s delivery can be assured by government without some controls at the airport level. To address this GACC support the recommendation in AEF’s relevant representation that GAL should agree to the imposition by the planning authority of an enforceable annual cap on aviation emissions associated with Gatwick Airport. Such a cap would enable government aviation carbon reduction targets to be met even if Jet Zero’s envisaged demand reduction ambition through SAF or other envisaged future technological changes are not able to be met at the scale required. This would enable there to be some mechanism to whereby policies to constrain demand might be delivered at the airport level. GACC believe such a cap would be essential in ensuring that government has some mechanism to be able to ensure the policy goals of Jet Zero are met.

## **7.4 Baseline and expansion plans are inconsistent with Making Best Use of Existing Runways policy and Jet Zero strategy.**

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<sup>66</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/109692/9/jet-zero-strategy-analytical-annex.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/109692/9/jet-zero-strategy-analytical-annex.pdf), paragraphs 4.1 and 5.1.

<sup>67</sup> [REDACTED]

<sup>68</sup>As noted in [REDACTED]

<https://assets.publishing.service.gov.uk/media/62d651618fa8f50c046c8419/jet-zero-strategy-dataset ods>

47. To manage its aviation emissions, the UK Government must link the *cumulative* impact of UK emissions against this global target. The last DfT estimates setting out how UK aviation might do that were based on increases in passenger movements on the existing runway at Gatwick to 45 mppa in 2030 increasing to 50 mppa in 2040 and 52 mppa by 2050.<sup>69</sup>

	ATMs (000s)			Terminal passengers (mppa)		
	2011	2030	2050	2011	2030	2050
<b>London airports</b>						
Heathrow	480	480	480	90	90	90
Gatwick	273	280	280	40	45	45

48. This Airports Commission’s modelling, which led to the government’s policy of Making Use of Existing Runways in 2018, was based on 280,000 air traffic movements and 45 mppa at Gatwick by 2050, which was then considered to be 100% of Gatwick Airport’s capacity.<sup>70</sup>

	2016	2030		2040			2050			
	central	low	central	high	low	central	high	low	central	high
Gatwick	43	45	45	49	50	50	54	52	52	55
Heathrow	76	87	86	86	89	90	90	91	93	97
London City	4	7	6	7	7	6	6	7	6	7
Luton	15	18	18	18	18	18	18	18	18	18
Stansted	25	24	31	35	35	35	35	35	35	35
London	162	180	187	195	199	199	204	203	205	212
annual growth rate		0.7%	1.0%	1.3%	1.0%	0.6%	0.5%	0.2%	0.3%	0.4%
Birmingham	12	16	18	20	23	27	30	31	33	36
Bristol	8	8	10	10	10	10	10	10	10	10
East Midlands	5	6	6	7	8	9	10	10	10	10
Edinburgh	12	12	13	13	14	15	16	17	18	19
Glasgow	8	11	12	13	12	13	14	14	15	16
Liverpool	5	4	4	5	5	5	6	9	8	12
Manchester	27	29	31	33	37	39	41	46	50	55
Newcastle	5	4	5	5	5	5	5	6	6	6
Larger regional airport total	81	92	98	105	114	123	133	144	151	165
Other regional	23	25	28	31	32	37	43	49	53	61
Total outside London	104	117	126	136	146	160	177	193	204	226
annual growth rate		0.8%	1.4%	1.9%	2.3%	2.4%	2.7%	2.8%	2.4%	2.5%
<b>Total</b>	<b>267</b>	<b>297</b>	<b>313</b>	<b>331</b>	<b>346</b>	<b>360</b>	<b>381</b>	<b>395</b>	<b>410</b>	<b>437</b>
annual growth rate		0.8%	1.2%	1.5%	1.5%	1.4%	1.4%	1.3%	1.3%	1.4%

2016 is modelled

**Table 32 Passenger demand by airport, baseline capacity, mppa.**

49. In claiming its expansion plans are consistent with the Making Best Use of Existing Runways policy, GAL should use the figures that underpinned that policy.

<sup>69</sup>DfT (2018) UK Aviation forecasts 2017.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/878705/uk-aviation-forecasts-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878705/uk-aviation-forecasts-2017.pdf), Table 32.

<sup>70</sup>Airports Commission Interim Report, December 2013: Appendix 3, Table 4.3.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/266670/airports-commission-interim-report-appendix-3.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/266670/airports-commission-interim-report-appendix-3.pdf)



50. The choice of Gatwick to increase the size of planes to take even more passengers and freight on the existing runway than modelled has more climate impact than that estimated by the government.

51. There is therefore no justification for GAL proposing that the project baseline should be considered as 62 mppa (in 2038), which is even higher than the figure considered for Gatwick in 2050 in the research that underpins government policy.

**52. GAL must explain why it believes it is acceptable to expand from 44 mppa to 80 mppa (as well as doubling airfreight). This is inconsistent with the Making Best Use of Existing Runways policy.**

53. In contrast, the government's Jet Zero strategy includes modelling that sets out that Gatwick might expand from 291,000 air traffic movements to reach 386,000 in 2050 but does not consider the number of passengers associated with 386,000 ATMs.<sup>71</sup> This project expects the level of 386,000 ATMs to be reached in 2047, three years earlier. Also, the assumptions to convert this 386,000 ATMs/year into carbon emissions (e.g. aircraft size, age (linked to fuel efficiency) are not published so it is not clear whether the modelled carbon emissions for Gatwick would or would not be exceeded by this project. It is not clear how this Jet Zero modelling is consistent with the Making Better Use of Existing Runways policy.

54. In conclusion, whilst the Jet Zero strategy includes some policy goals, and it is supported by models indicating how the strategy might be delivered. both the Flight Path to the Future (2023) and Jet Zero strategy state that MBU (2018) and ANPS (2018) (not Jet Zero) are the policy documents that should govern this development's consent. However, both of these pre-date the UK's zero carbon commitment (The UK Climate Change Act [2050 Target Amendment] Order 2019)<sup>72</sup>. Therefore, it is GACC's view that the Government should review and update these two policies to ensure that they wholly comply with delivery of before the Secretary of State reviews the DCO recommendation from the Examining Agency (ExA, UK Government's Planning Inspectorate).

## **7.5 Non-CO2 effects are not accounted for, but significantly increase GHG emissions**

55. GAL states that since there remains no well-established methodology for measuring the impact of non-CO2 emissions (The bulk of the greenhouse effect caused by aviation is not due to the carbon released into the atmosphere by burning aviation fuel, but to the particulate matter (soot) and nitrogen oxides that are also released and that react in the air to form methane and ozone, water vapour and the condensation trails that lead to

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<sup>71</sup>Jet Zero Modelling (2022), Annex D.  
<https://assets.publishing.service.gov.uk/media/62384b518fa8f540f3202bd4/jet-zero-modelling-framework.pdf>.

<sup>72</sup><https://www.legislation.gov.uk/ukdsi/2019/9780111187654>

the formation of cirrus clouds in the upper atmosphere).<sup>73</sup> GAL therefore state that there is uncertainty on how to identify the magnitude of their impact, so the GAL assessment does not attempt to quantify these impacts.

56. While it is difficult to estimate the warming impacts of these factors accurately, the prevailing consensus is that they are large. The EU Aviation Safety Agency (EASA)<sup>74</sup> reviewed the latest science on non-CO2 effects, and concluded they could account for two-thirds of aviation's total warming impact to date. The CCC reference this same figure in their sixth carbon budget report (2020).<sup>75</sup> The CCC then state that, "The UK should attempt to report annually a best estimate of the impact of these non-CO2 effects on global temperatures, as they are a significant part of aviation's impact on the climate". This alone means that GAL's assessment has potentially quantified only a third of the overall warming effects of the increase in flights.
57. Others have estimated the significance of these non-CO2 effects and concluded that decarbonisation is not possible unless the overall scale of aviation is reduced. For example, CPRE Surrey (Relevant Representation) refer to research by the Paul Scherer Institute and ETH Zurich (2023) that also casts doubt on the impact that biofuels and/or green hydrogen will have on reducing aviation's carbon footprint by mid century.<sup>76</sup>
58. Uncertainty is not an adequate reason to not present impacts. For example, when calculating the benefit-cost ratio of the expansion,<sup>77</sup> figures including and excluding "wider economic impacts" are included, even though the DfT acknowledges that "modelling and valuing wider economic impacts is complex and subject to a high degree of uncertainty."<sup>78</sup> By analogy, the appropriate and consistent approach is to quantify non-CO2 effects, but acknowledge that this is subject to a higher degree of uncertainty to other types of impacts.
59. It is also incorrect that there is no well-established methodology for quantifying non-CO2 effects. DEFRA has published conversion factors from passenger-kms travelled to CO2 estimates, including non-CO2 effects.<sup>79</sup> These factors are for use by UK and

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\_\_\_\_\_ . However, CO<sub>2</sub> emissions only account for around a third of the environmental impact of air travel. The formation of condensation trails, for example, is just as important. As they burn fossil kerosene, jet engines also emit soot particles and other condensation nuclei. At cold temperatures and high altitudes these instantly form ice crystals that appear as condensation trails in the sky. Under certain conditions this can lead to the formation of artificial clouds, known as aircraft-produced contrail cirrus clouds. Although some of these clouds allow visible sunlight to pass through almost unimpaired, they reflect and absorb the infrared rays from the Earth's surface very efficiently, preventing the radiation from escaping into outer space.

77 \_\_\_\_\_ 18.

78 <https://assets.publishing.service.gov.uk/media/600ea9258fa8f5654ca409df/tag-unit-a2-1-wider-impacts-overview-document.pdf>, paragraph 1.1.3.

international organisations to report on greenhouse gas emissions. Its recommendation to include non-CO2 effects is unequivocal: “Organisations should include the indirect effects [i.e. non-CO2] of non-CO2 emissions when reporting air travel emissions to capture the full climate impact of their travel. However, it should be noted that there is significant scientific uncertainty around the magnitude of the indirect effect of non-CO2 aviation emissions and it is an active area of research.” The supporting methodology paper recommends a multiplier of 1.7 is used as a central estimate.<sup>80</sup> GACC also notes (from AEF’s relevant representation) that: i) the Government is working with the Jet Zero Council on a work programme on this issue; ii) the European Commission is consulting on establishing a monitoring, reporting and verification system for the non-CO2 effects in aviation as part of the EU Emissions Trading Scheme (ETS); and iii) the UK Government recently consulted on how non-CO2 impacts could potentially be included in the UK ETS. **GAL should include non-carbon impacts as part of their assessment of climate change impacts in the environmental impact assessment.**

## 7.6 GAL has failed to assess the significance of the increase in carbon emissions in road transport around the airport.

60. The Transport Assessment (Document 7.4) confirms that a significant proportion of the additional surface transport is modelled to be road traffic. And this may well underestimate future transport, due to induced travel through the road improvements by other local projects, as well as potentially by the assumptions that underpin the transport modelling (see transport section).
61. The significance of this increase in road transport greenhouse gas emissions, and its impact on overall plans to reduce emissions in this sector, should be assessed in its own right. The increase is 34% of traffic is modelled as impacting both the Strategic Road Network (SRN) and to the Local Authority Transport Networks. GAL should assess the way in which this and other SRN investments impact on overall transport emissions in future. The increase in surface transport carbon emissions should comply with local transport strategies for the areas surrounding the airport. These have been developed and approved for West Sussex and Surrey.<sup>81</sup>
62. Apart from aviation and shipping, road transport has been proved difficult to decarbonise in the UK,<sup>82</sup> and recently reduced its ambition to decarbonise.<sup>83</sup> The lower ambition for aviation decarbonisation in the government’s Jet Zero strategy, let alone

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<sup>79</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/108385/4/ghg-conversion-factors-2022-condensed-set.xls](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/108385/4/ghg-conversion-factors-2022-condensed-set.xls), “Business travel – air” tab

<sup>80</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/116131/7/2023-ghg-cf-methodology-paper.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/116131/7/2023-ghg-cf-methodology-paper.pdf). Paragraphs 8.43 states: A multiplier of 1.7 is recommended as a central estimate, based on the best available scientific evidence, as summarised in Table 43 and the GWP100 figure (consistent with UNFCCC reporting convention) in Table 44 below and in analysis by Lee, DS, Fahey, DW, Skowron, A et al. (2021). The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018. Atmospheric Environment, 244.117834. ISSN 1352-2310. <https://doi.org/10.1016/j.atmosenv.2020.117834>.

<sup>81</sup> West Sussex (2022) <https://www.westsussex.gov.uk/media/17428/wstp.pdf> and Surrey County Council (2022) <https://s3-eu-west-2.amazonaws.com/commonplace-customer-assets/surrey/tp4/Surrey%20Transport%20Plan.pdf>.

that proposed for Gatwick, implies the need to compensate Gatwick's growth by decarbonising other sectors of the economy faster. However, GAL's plans to substantially increase the scale of surface transport around the airport, slowing the rate of decarbonising road transport. This suggests that the airport's own plans, such as its knock-on impact on road transport emissions around the airport, will not only make it harder to stay within the UK's planned aviation carbon budget, but the carbon budget for other sectors too.

63. The National Networks National Policy Statement (NN-NPS)<sup>84</sup>, paragraph 5.17, states that it is very unlikely that expansion of one road alone will affect the ability of the Government to meet its carbon reduction targets. However, in this case what is requested is how demand for aviation growth (that itself is proposed to go beyond the envisaged aviation carbon budgets) in turn is proposed to be supported by growth in the national network, which would generate additional surface transport (passenger and freight), thus impacting the road transport carbon reduction targets to be met. GACC agree with GAL that the significance of these climate aspects should be considered together. However, we dispute GAL's claim that the combined impact of aviation-related carbon emissions (ANPS, paragraph 5.82) and surface transport related carbon emissions (NN-NPS, paragraph 5.17) are not significant.
64. GAL's Carbon Action Plan does not include surface transport. It should, as these emissions are a direct result of this project.
65. The increase in overcrowding of existing trains on the London-Brighton mainline from Gatwick passengers (and to a lesser extent, workers) will reduce the potential for modal shift of other journeys in this in this transport corridor. The extent to which the airport's growth plans might dampen increased uptake of rail travel, through increased rail utilisation without any additional capacity provided, should be assessed.
66. GACC consider that the increase in the Project's surface transport carbon emissions is significant. Carbon impacts of surface transport should be assessed in terms of their impact on national and local road policies and targets. **GACC request that the extent to which the Project would make it harder to achieve the Government's Transport Decarbonisation Plan, and (primarily with respect to the Project's impacts on local roads) on the local transport plans (LTP4) and climate strategies for East Sussex and Surrey.**

## 7.7 Insufficient information on how construction phase carbon emissions will be limited

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In 2022, surface transport emissions increased by 3% to 105 MtCO<sub>2</sub>e, contributing 23% of the UK's total emissions in 2022, making it the country's highest-emitting sector.

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84 <https://assets.publishing.service.gov.uk/media/5a7e0a40ed915d74e6223b71/npsnn-web.pdf>

67. The construction emissions predicted in the 2021 consultation were calculated as 1.610 MtCO<sub>2</sub>e. Now the construction carbon footprint is estimated as not exceeding 1.155 MtCO<sub>2</sub>e.<sup>85</sup>

68. The GHG chapter states that it accounts for measures outlined in the Carbon Action Plan (CAP)<sup>86</sup> but it does not include any ‘concrete’ commitments to reduce emissions. For example, in the CAP, it only mainly “encourages the use of low or zero carbon vehicles”, without further detail provided.<sup>87</sup> It is also unclear what assumptions have gone into quantifying the embodied carbon emissions.

69. In addition, it is not clear whether the terminal and other assets included in the application are sufficient to accommodate the full increase in passenger numbers set out in the Project.

70. **GAL should clearly set out how its plans to reduce embodied carbon emissions beyond the high level of detail in the Carbon Action Plan.**

## **7.8 Recommendation: UK-wide and airport level carbon budgets on aviation emissions**

71. The acceptability of this planning application should first be considered in light of the recommendations of the Climate Change Committee (CCC) in their 2023 Progress Report to Government (June 2023).<sup>88</sup> The Committee set out a priority recommendation for Aviation that there should be “No airport expansion without UK-wide capacity-management framework.”<sup>89</sup> This recommendation to not permit any further growth in UK airport capacity until demand management measures are in place implies that the Jet Zero Strategy alone is insufficient to manage aviation demand.

72. The CCC’s recommendation is for both supply-side and demand-side measures to work together to guide aviation policy. This is different from the Jet Zero strategy that has no demand side constraints (or supply side constraints by airports themselves) and is

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<sup>85</sup>APP-191

<sup>86</sup>AP-041, Paragraph 16.1.3.

<sup>87</sup>APP-091, Table 3-8, CN29.

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<sup>89</sup>p37 of the report sets this out as: “No airport expansions should proceed until a UK-wide capacity management framework is in place to annually assess and, if required, control sector GHG emissions and non-CO<sub>2</sub> effects. A framework should be developed by DfT in cooperation with the Welsh, Scottish and Northern Irish Governments over the next 12 months and should be operational by the end of 2024. After a framework is developed, there should be no net airport expansion unless the carbon-intensity of aviation is outperforming the Government’s emissions reduction pathway and can accommodate the additional demand. Primary responsibility: DfT” Furthermore, Figure 10.9 highlights that there is a significant risk to delivering 5 million tonnes of CO<sub>2</sub> emission reductions from the aviation sector in the sixth carbon reduction budget (as noted in Relevant Representation from Climate Emergency Policy and Practice (CEPP)).

consistent with the case made by climate policy experts.<sup>90</sup> This can be explained as: effective climate policy works in the same way as how to use a pair scissors: ineffective unless both arms of the scissors are pressed together.

73. To address this the cumulative impact of expanding airport capacity whilst reducing the costs of aviation (automation of workforce, fuel efficiency gains) need to be considered. Increasing capacity combined with efficiency gains is likely to lead to continued growth in scale (of the sector and its emissions), and therefore fail to deliver the modelled reduction in carbon reductions envisaged in Jet Zero. This is widely referred to as Jevons Paradox.<sup>91</sup> With respect to airport capacity in the UK, Mid Sussex (Relevant Representation) notes that the GHG Assessment in the ES does not assess the cumulative impact of the project in the context of eight of the biggest UK airports planning to increase to approximately 150 million more passengers a year by 2050 relative to 2019 levels. This will greatly increase the UK's cumulative aviation emissions, which may have significant consequences for the UK's net zero trajectory. Similarly, the 2% from technological improvements each year included in the Jet Zero strategy might simply drive aviation growth.

74. Therefore, to align Gatwick's emissions to the climate science (maximum 1.5A C post-industrial warming globally) a cap on aviation emissions at this and all other airports to restrict flights to within the UK's carbon budgets is required. This is required both nationally, and to be reflected in the operational restrictions for each airport.

75. Schiphol Airport in Amsterdam planned to introduce a retrospective cap on flights to limit noise and air pollution from 2024 (still awaiting ratification by the European Commission) and the Dutch Government has also considered the imposition of CO2 caps on its airports.<sup>92</sup> Flights from the main airport of Amsterdam would be limited to 452,500 per year from 2024, 9.5% less than 2019 levels. A cap on emissions from Gatwick would help to ensure that emission reduction improvements assumed and promised as part of Jet Zero are actually delivered.

76. Such a cap would serve to ensure that the decarbonisation of aviation emissions promised in Jet Zero (see Section 2 below) such as shifting to Sustainable Aviation Fuels (SAF), which are currently much more expensive than kerosene, are delivered in reality. In fact the introduction of SAF promised through Jet Zero could raise the price of flights in the short term, helping to curtail demand for air travel until the time that air travel is fully decarbonised and this and/or other technologies might be mainstreamed. However, it is unclear how this would happen in the short-term without distortion of the wider market for clean energy, which would mean aviation decarbonises at the expense of other sectors, resulting in the overall economy-wide carbon budgets for the UK to be exceeded.

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90 [REDACTED].

91 See a short note with respect to aviation at [REDACTED]

[REDACTED] ho

77. Such a cap should be linked to a UK-wide commitment that no airport expansions should proceed until a UK-wide capacity management framework is in place to annually assess and, if required, control aviation sector CO<sub>2</sub> emissions and non-CO<sub>2</sub> effects.
78. **GACC propose that an overall cap should be introduced to reduce carbon emissions at Gatwick Airport going forward. This should be applied now, which would mean that this development should not be permitted.**

## **7.9 Additional Points Arising from Issue Specific Hearing**

79. GACC highlight the points made in ISH4 about the need to consider the worst case scenario in the Environment Assessment, which would mean comparing the with-project case (2047) with the current (2019) baseline, as opposed to the future baseline presented by the applicant. For climate change, this means the full impact from the current situation to future project impact should be considered for carbon emissions associated with the project. GACC take the position that this should be extended to include aircraft emissions as well as construction, on-site operations and surface transport emissions, as stated separately.

## Section 8. Air Quality

### 8.1 Summary

1. GACC have a number of serious concerns regarding the air quality chapter, assessing the impacts of the airport development over future years. This is specifically regarding the modelling calculations and assumptions it is reliant upon. As a result of this crude, largely desktop-based modelling, GAL is only, at best, able to infer that the airport's growth has limited adverse impact because of the positive measures of government and local councils towards improving air quality levels, to minimise health impacts of air pollution. As such the development undermines the achievements that have been made and will continue to undermine future achievements.

2. By way of context, air quality modelling is used to predict air quality (air pollution) levels at various geographic locations. National and international guidelines to protect people and habitats from air pollution focus on key pollutants (nitrogen dioxide (NO<sub>2</sub>), and particulate matter (PM) in particular, though other pollutants can be significant depending on the source of the pollutant emissions). Pollutants are emitted from various pollution sources (e.g. cars, chimneys, aircraft, waste sites, construction sites). The pollutants diffuse, disperse, react and settle, according to the prevailing weather conditions and combine with background pollutant levels. The resulting air quality at a given location can be measured by various monitoring devices; ranging in cost, complexity and accuracy; and based near roadsides or in urban or rural locations.

3. Air quality modelling usually calculates two-dimensional contours of air quality levels over a specified geographical area: e.g. a part of a town or an area surrounding a planned development that is expected to be affected by the pollutant emissions arising from that development and the levels at various locations can be identified. Calculations are made of air pollutant values averaged over different periods of time: e.g. over minutes, hours or a year, according to the predicted health impacts of the pollutants being considered, describing the short-term and longer-term effects of these pollutants on health and habitats. Air quality modelling relies on: a) historic weather data; b) baseline and future pollutant emissions assumptions (based on the predicted emissions sources); c) baseline measured background air quality levels. All of these have their own inherent uncertainties. Weather data is itself a snapshot of averaged, spot measurements, and the future year weather is not known with any certainty. Emissions inventories are also dependent upon assumptions with regards to road traffic levels, industrial emissions sources and airport related emission sources. Background air quality (i.e. the level measured at schools, at hospitals and in people's gardens) is often based on very crude monthly-averaged measurement devices (e.g. diffusion tubes for NO<sub>2</sub>) or roadside emissions monitors, which are very limited in number. Together all of these uncertainties are combined within the crudeness of the available air quality models, which ideally should only be used to compare different development scenarios rather than be relied upon to calculate absolute air quality levels with any accuracy (since they are using so many assumptions in their input data).

4. The confidence in the modelled air quality levels for future years is severely undermined by substantial inaccuracies in all of the aforementioned items. In particular the values for the baseline-modelled year (2018, especially for NO<sub>2</sub>) are crudely adjusted to force a fit to the monitored air quality data. For this reason GACC



propose that the model is made available for public scrutiny and that an independent statistical review is carried out to validate the assumptions and adjustments to better align the model data to the monitoring data and to review the quality of the monitoring data that is being used.

5. In our view, the modelling must not be relied upon to demonstrate that the future project impacts are not significant.

6. To make this data more robust, GAL should be required to annually review the accuracy of modelled data throughout the development stages, ensuring appropriate mitigation measures are in place should significant impacts be found. This should include reviews on the robustness of pollutant emissions inventories, with revisions of the air quality modelling to reassess and redefine the air quality impacts of the project at each stage to ensure no significant impacts are missed and not mitigated in a development of this scale. Furthermore, GAL should commit to substantially increasing the level of monitoring (covering the key pollutants of concern, particularly at sites vulnerable to project impacts e.g. schools, hospitals and homes likely to be impacted by an increase in road traffic or other airport-related emission levels) to ensure better quality baseline levels for future years upon which the project impacts are superimposed.

7. In addition, a true future baseline should be provided that is independent of any increase in passenger numbers at Gatwick.

## 8.2 Overview

8. The general public are exposed to air quality levels in public places – their gardens, at schools and at hospitals as well as at the roadside. This has an impact on public health and would reduce life expectancy as highlighted by Growing Health Together (Relevant Representation).<sup>93</sup> Major developments create a variety of emission sources that combine with other non-project sources – including traffic and industry – and are dependent upon the weather – and can result in peaks and averages of various air quality pollutants that can cause harm. Toxic substances can affect our health via a single high dose or by a long-term exposure to a lower dose for example, or by exposure to a pollutant which has accumulated over time to reach a critical level.

9. Air quality modelling is a relatively crude way of assessing the impacts of large projects. The impacts of major airports are particularly complex. In the case of Gatwick, project-related emissions include those that arise from road transport, the CARE facility, aircraft taxiing and from flights – in addition to other sources, and combine with local weather conditions and topography to create local air quality impacts on the public and on sensitive habitats.

10. As a result of this crude, largely desktop-based modelling, GAL is only, at best, able to infer that the airport's growth has limited adverse impact due to the positive measures already planned by government and local councils. For example, a 40% increase in overall vehicle numbers arising from the airport expansion is largely offset by a 30% reduction in vehicle emissions from public health measures- thus leading to a

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<sup>93</sup>See <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>.

smaller project impact. So, the locations affected by the airport will suffer continuing poor air quality (affecting the health of the local inhabitants), whilst air quality levels will improve significantly elsewhere.

11. Better air quality monitoring and modelling is required to more accurately understand the significant impacts of the airport expansion and to decide whether proposed mitigation measures are sufficient.

## 8.3 Baseline, Assumptions and Data Collection

### 8.3.1 Traffic baseline and traffic flow discrepancies

12. GACC request that GAL provide a clear justification regarding the choice of only one year - 2018 - for weather data. It would be expected that GAL should use, as a minimum, at least five years of weather data, as is typical in modelling for even smaller projects, especially given the enormity of this project and variability of weather year on year. Similarly traffic baseline data should be sensitivity tested to take account of any changes since this date, such as new schools and businesses in the vicinity of Gatwick Airport.

13. The air quality modelling is heavily dependent upon surface transport electrification and mode shift assumptions (as noted by CBC, Relevant Representation). This should be subject to a sensitivity analysis given the risk of transport decarbonisation and mode share targets not being met.

14. Some important traffic and air quality monitoring data sets are lacking. For example, robust (regular) road traffic survey data for the key locations around the airport (with respect to air pollution levels).

15. Similarly, it is unclear why construction is not included in the future traffic baseline when looking at operational traffic effects coinciding with construction phases as the project is developed.

16. For example, National Highways (Relevant Representation, p17-18) noted that in APP-038 (paragraph 13.10.25) the largest change in air quality due to the construction 2024 scenario is predicted to be at R\_147 Sutton Common Road, 12km North of the M25, as a moderate adverse impact. National Highways is concerned that anomalous results like the above, demonstrates uncertainty and undermines the validity of the traffic model used. National Highways requests clarity as to how the model concludes the largest air quality impact will be at a location that is 12km to the north of the M25 and not near the airport.

17. GACC also request that GAL provide a clear explanation as to the traffic flow discrepancy and quantified annual average daily traffic flow (AADT) flow estimates for the roads mentioned in Natural England's comments on traffic flows along relevant roads. In Appendix 13.3.2 (APP-157) Natural England raise concerns about the statements in paragraphs 5.2.7 and 5.2.10 of the Habitats Regulations Assessment [HRA] report that state that cumulative, "*In combination' flows (i.e. taking account of all other traffic growth) on the M3 past Chobham Common, and roads through Ashdown Forest Special Area of Conservation [SAC], will not exceed 1000 AADT between base year and*

assessment year, particularly for the M3. This appears to conflict with traffic modelling exercises undertaken for Local Plans in these areas. For the DCO Environmental Statement, it will be important to understand that a true 'in combination' assessment has been undertaken (i.e. considering the effect of the Scheme in combination with traffic growth due to housing and employment delivery in the modelled area between base year and assessment year)."

18. Similarly, Natural England makes the following comment in Appendix 13.3.2 (APP-157). "For the Thursley, Ash, Pirbright & Chobham [TAPC] SAC/Chobham Common [Site of Special Scientific Interest] component of the Thames Basin Heaths Special Protection Area [SPA], the only location where the change in cumulative AADT is predicted to exceed 1,000 is along the M3." It then goes on to state [in the PEIR] that, "The resulting cumulative nitrogen deposition is <1% of the relevant critical load (Figure 5.2.5) and, as such, no cumulative effects are predicted. The former could [not] be true since the M3 is by far the busiest road in that area which is likely to be used by vehicles travelling to Gatwick." National England (Relevant Representation) have reiterated their concern that not enough information has been provided within the submitted documents for Natural England to assess potential impacts upon Sites of Special Scientific Interest (SSSI) from traffic related air pollution. GACC request that the applicant provide the AADT flows and cumulative deposition values and underlying calculations and assumptions that are currently just broadly referred to via an Appendix document without a paragraph reference.

### 8.3.2 Choice of data sets

19. **GAL should also be required to determine that baseline air quality and emissions data have not been underestimated.** It is noted that the data sets collected in 2022 (from Defra, Environment Agency, NAEI, APIS) may have underestimated background pollution levels due to lockdown and general pandemic related reductions in industrial and traffic activity.

### 8.3.3 Assumptions regarding climate adaptation and extreme weather

20. Paragraph 13.10.174 (APP-038) appears to justify extreme weather events and increasing temperatures as not likely to increase air quality effects. This statement should be evidenced and linked to the expected future climate changes over the full (100 year) life of the project and associated infrastructure. This statement seems to defy all basics of pollution dispersion modelling whereby wind speed, wind direction and periods without any wind clearly impact on pollution dispersion. Road traffic, aircraft, static plant emissions are all likely to be affected and the chemical reactions involving these pollutants and affecting their deposition (on ecological sites and affecting human health) would be expected to worsen.

21. **GACC propose that the applicant use a modified weather year dataset and rerun the air pollution models to demonstrate the impact on NO<sub>x</sub>, ground level ozone, CO and PM of a range of reasonably predicted future weather situations.**

### 8.3.4 Assumptions regarding stacking-related emissions

22. GACC concur with TDC's comments, requesting that GAL provide evidence to support GAL's statement that, "stacking-related NO<sub>x</sub> emissions will be negligible since

LTO cycle emissions at 3,000 feet are negligible for ground level NO<sub>2</sub> impacts” (APP-157). **GACC request that GAL provide evidence to support the inference that stacking will always be above 3,000 feet and also that emissions at this height have a negligible impact on ground level NO<sub>2</sub>/NO<sub>x</sub> levels.**

### 8.3.5 Assumptions regarding Jet Zero High Ambition scenarios

23. 13.9.4 in APP-038 suggests assessments of GHGs are based on the Jet Zero High Ambition Scenario. Please provide details of what other options have been assessed given current uncertainties on this, and what impact this has on the air quality modelling?

### 8.3.6 Request for Independent Review of Assumptions and Limitations

24. **GACC would like to see an independent review of the assumptions and limitations set out in APP-158 - Table 7.1.1: Assumptions and Limitations of the Air Quality Assessment.**

### 8.3.7 Pollutants Modelled

25. APP-158 states the limitations to the air quality assessment from the pollutants modelled. APP-158, Section 3.1.1, describes how the methodology builds on that used for air quality assessments for Gatwick Airport in 2002/3, 2005/6, 2010 and 2015, and followed Department for Transport (DfT) recommendations for the Project for the Sustainable Development of Heathrow (PSDH) (DfT, 2006). APP-158, section 3.1.6 notes that activities associated with an airport release a wide variety of pollutants but for most of the regulated pollutants, airport emissions (even from a large airport) are not a significant factor in whether or not current air quality standards can be met around the airport. The relevant evidence was previously reviewed by the Air Quality Technical Panels for the PSDH (DfT, 2006) which concluded that benzene, 1,3-butadiene, carbon monoxide, lead, polycyclic aromatic hydrocarbons (PAHs) and sulphur dioxide (SO<sub>2</sub>) were not priority pollutants at airports. This led to a focus on oxides of nitrogen (NO<sub>x</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and ozone (O<sub>3</sub>). It was further noted that O<sub>3</sub> is not a primary airport pollutant, although airports contribute precursors to the formation of O<sub>3</sub> on a regional and trans-national scale - volatile organic compounds (VOCs) and NO<sub>x</sub>. Therefore, O<sub>3</sub> is not currently included in the regulations for local air quality management (Air Quality Standards Regulations, 2016) and is excluded from this assessment. Although the PSDH (DfT, 2006) review of priority pollutants was carried out in the Heathrow Airport context, GAL suggest that this is transferable to Gatwick and has been applied in air quality assessments of other major airports in the United Kingdom (UK).

26. However, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), also referred to as Ultra-Fine Particles (UFP), have not been monitored by GAL. Therefore, GAL has provided no verification of PM<sub>10</sub> or PM<sub>2.5</sub> levels against local monitoring. However, there are a number of AQMAs and multiple sensitive receptors close to this nationally significant infrastructure project. UFP impacts (in addition to NO<sub>x</sub> impacts) on young or otherwise vulnerable lungs is a key area of concern. The World Health Organisation (WHO) has referred to this in the past two decades and it is highlighted in the latest WHO air quality guidelines. RBBC (Relevant Representation) specifically have requested that the exposure of the residents in Horley AQMA to ultrafine particles (first raised in 2012, and again in 2019) is assessed (monitored and modelled). They make reference to DEFRA advice (2022) that states

that, “In addition to NO<sub>2</sub> there is growing evidence of the health impacts associated with ultra-fine particles linked to airport activities.

27. These concerns are also expressed by MVDC who comment that, “*The absence of a discussion on ultrafines [UFP] in the air quality chapter is also surprising given that the main source of ultrafines are the aircraft themselves, and as the air quality modelling had shown aircraft emissions of NO<sub>x</sub> are forecast to increase by 33% from 2018 to 2032 (with development) at the one receptor modelled where aviation emissions have a significant impact. ... The report could have discussed the likely ramifications of the changes in qualitative terms for the benefit of the health assessment chapter.*” ... “*The need for ultrafine particle monitoring in the vicinity of the airport is in line with the recommendations of the Government’s air quality expert group [AQEG], and the Government’s draft aviation strategy (Aviation 2050: The Future of UK Aviation. pp.82).*”

28. Tremper et al (2022)<sup>94</sup> highlight that concentrations of ultrafine particles in Horley Riverside Gardens were recorded as high as adjacent to the Marylebone Road, a busy road in central London. The airport source factor contributed 17%, and was highest nearer the airport. The latest WHO global air quality guidelines (2021)<sup>95</sup> highlight the increasingly strong links between air pollution and human health, and propose increasingly lower safe limits (Table 0.1), including the inclusion of ultrafine particles. GACC seek clarity on how the proposed expansion will increase ultrafines and impact on the health of both airport workers and residents living around the airport.

29. Given that this major infrastructure project has the potential to emit a range of emissions beyond those typically measured in local air quality monitoring, it is suggested that further work is required to confirm some of the “non-significant” emissions statements made by GAL and confirm some of the assumptions made in the air quality assessment, not least with respect to UFP.

**30. It is therefore GACC’s view that a commitment to local monitoring of UFP, metals, SO<sub>2</sub> and a variety of VOCs and PAHs would be appropriate for a substantial infrastructure project with the potential for significant impact on emerging health impacts. It is not necessarily appropriate to simply adopt the findings of a Heathrow study to a location that has been less heavily trafficked, with a lower industrial base and a mixed rural and urban population. The road network was not built to manage airport related traffic levels and there are many sensitive habitats likely to be impacted.**

### 8.3.8 Need for Future Baseline

31. GACC are concerned that the sensitivity analysis has only compared the project increase against the future baseline, which still has increases in flights, passenger

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<sup>94</sup> Anja H. Tremper, Calvin Jephcote, John Gulliver, Leon Hibbs, David C. Green, Anna Font, Max Priestman, Anna L. Hansell, Gary W. Fuller (2022) Sources of particle number concentration and noise near London Gatwick Airport. Environment International, Volume 161, 2022. 107092,ISSN 0160-4120.

<sup>95</sup> World Health Organisation (2021) WHO global air quality guidelines. Particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide. Executive summary. Geneva: World Health Organization. Licence: [REDACTED]

numbers and vehicle transport associated with additional (and typically larger) flights on the current runway over current levels of activity.

32. To properly understand the true impact of the project, a baseline should be modelled from now, without any expansion of Gatwick passengers or flights. This would show the extent to which the background level of air pollution is falling. This would make it clear the extent to which the project is undermining planned future improvements in air quality.

**33. To address this, GACC propose that GAL be required to provide a future scenario without the project to show the extent to which GAL undermines future improvements associated with national trends in traffic emissions reductions. GACC propose that GAL should also model the impact of a continuation of the current level of passenger numbers, so it is possible to appreciate the extent to which the proposed level of increase on the main runway is also having an impact.**

### 8.3.9 Sufficiency of Monitoring

34. GACC are surprised that the air quality assessment for such a complex mix of air pollution sources and pathways is not supported by continuous air quality monitoring data at a statistically significant number of locations. The current assessment has an over-reliance on (a relatively small number of) diffusion tubes and lack of real-time monitoring has not provided sufficiently granular data to enable a model to be developed that actually reflects what is currently happening with regard to air quality around the airport.

**35. It is GACC's view that GAL's current air quality assessment should not be accepted. GACC propose further monitoring be undertaken (at various key sites and ongoing) to adequately understand the likely impacts around Gatwick Airport and at key human and habitat receptor locations - this will improve the overall standard of air quality monitoring and modelling and enable improved understanding of air quality impacts of major UK airports. This must be based on an increased number of designated monitoring locations, with real-time monitoring data alongside other baseline data such as road traffic surveys at key locations around the airport as well as a continuously updated airport emissions inventory, for onsite emissions sources. An independent expert group should manage this process, with a commitment to publish the data and analysis.**

36. GAL should also be required to undertake the following activities to produce a more robust air quality assessment:

**37. GAL should carry out additional pre-project and project phase air quality monitoring at key receptors (those with greatest predicted project impacts and those predicted to exceed standards with or without project) as well as school, hospital care home and other vulnerable receptor sites.** This would enable the current assumptions that baseline and future air quality concentrations are not significant to be confirmed, and to ensure that the assessment avoids underestimating impacts for different pollutants in combination (e.g. for SO<sub>2</sub>, ozone, NH<sub>3</sub>, HMs, CO, NH<sub>3</sub> and VOCs such as BTEX and other airport emissions substances).

38. GAL should undertake appropriately located additional monitoring (of NH<sub>3</sub>, CO, HMs, SO<sub>2</sub> and VOCs) during excavation works to ensure no significant local air quality and nuisance impacts occur during the construction phase. For example, this could use a GCMS monitor and other suitable, advanced monitors to pick up the range of emissions during a peak emissions month. This is important as such monitoring has not been assessed so far, as it falls outside of the scoping process required by PINS. **GAL should also confirm if there been any historic contamination of the site from airport or other polluting activities.**

39. GAL should confirm whether the monitoring sites at Hookwood and Charlwood are now agreed for NO<sub>x</sub>, as recommended by MVDC (APP-157) due to high modelled impacts at these locations. Similarly GAL should confirm whether the monitoring sites at Smallfield and the M23 are now agreed for NO<sub>x</sub>, as recommended by TDC (APP-157) for future NO<sub>2</sub> monitoring.

## 8.4 Modelling Methodology

40. GACC question whether such a nationally significant infrastructure project should be allowed to proceed with such a poor air quality modelling exercise. Not only is the air quality assessment founded on inadequate monitoring, this has been clumsily linked to the poorly defined air pollution model by crude assumptions on (limited) weather, traffic and other emissions source data.

### 8.4.1 Identified Flaws in Air Quality Model

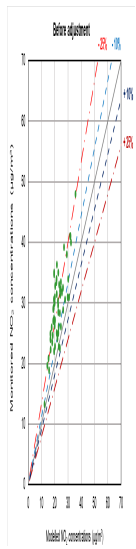
41. GACC refer to the CBC comments regarding the PEIR modelling, underlining the unreliability of the modelling results. CBC commented that even with refinements through the technical working group meeting, the verification process adjustments for the eight zones in the ES appendices suggest a wide margin of error in air pollution modelling versus air quality monitoring data. These comments (APP-157) highlighted that the dispersion model setup and methodology applied for the model verification includes elements which could lead to unreliable modelling results being presented for both the baseline (2018) and future years, both with and without the scheme in operation. The different elements identified included the following:

- ! Misaligned road with gaps between road links in modelling;
- ! Only roads 200m from monitoring / receptors included within the wider study area;
- ! Monitoring sites incorrectly located in the model;
- ! Road widths in modelling inaccurate;
- ! Exclusion of sites suitable for use in model verification;
- ! High uncertainty in some verification zones;
- ! Area based approach to zoning;
- ! Use of Clapp and Jenkin for NO<sub>x</sub> to NO<sub>2</sub> conversion (not verified for future climate situation);
- ! Consideration of congestion;
- ! Information supporting the application of a factor of 1 to some verification zones;  
and
- ! Modelled versus monitored road NO<sub>x</sub> at each verification site.

42. In response to the London Mayor's comments (APP-157) about concerns on the quality of the modelling in the PEIR, can the reasons for the initial discrepancy be clarified and explicitly detailed as to how this has been remedied. This relates to the comment that, "*The number of separately adjusted model verification zones (22 zones with 16 separate verification factors) is also a cause for concern and suggests that there may be deeper issues with the model.*" Indeed the graphs below show how crude these adjustments are and in some cases based on TWO to FIVE data points, which is no basis for data adjustment (e.g. Crawley, Croydon Park Lane, Hassocks, Merstham). The graphs and the crude adjustments they show, indicate that the modelling is woeful at estimating air quality levels for 2018 and is an extremely poor basis for predicting future year air quality levels, with or without the airport expansion.



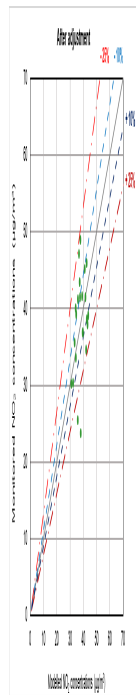
**APP-159,  
Diagram 3.3.1:  
Model performance before and after adjustment, Generic zone**

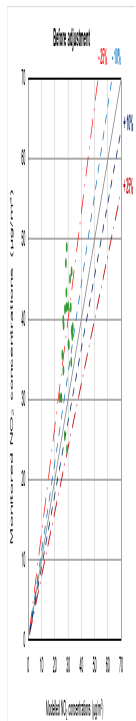


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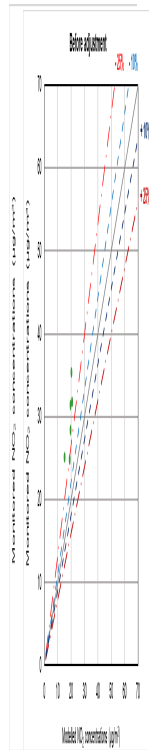
performance before and after adjustment, Brighton Road (airport) zone





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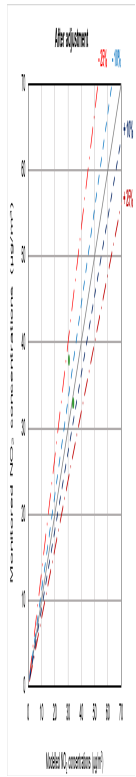




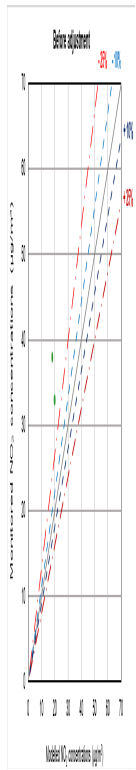
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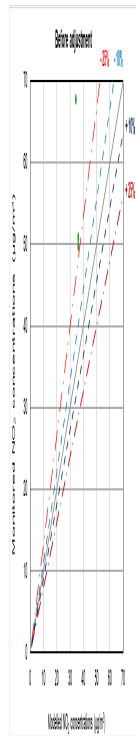




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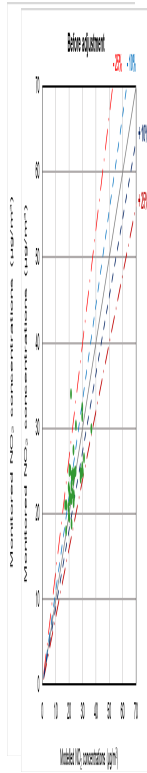
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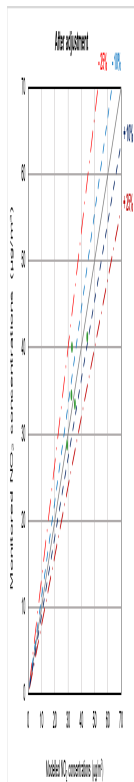
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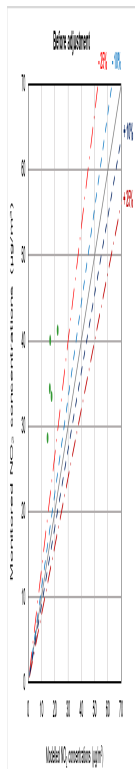


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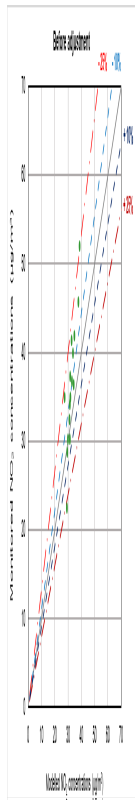




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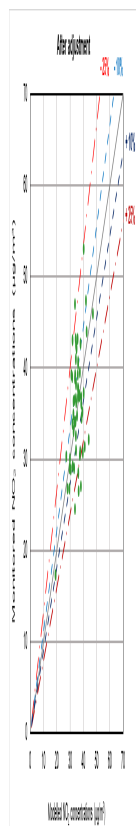
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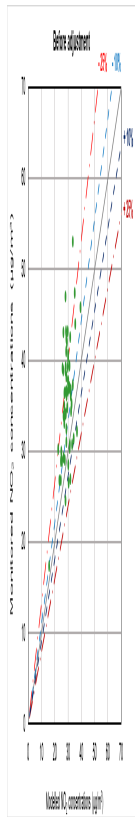


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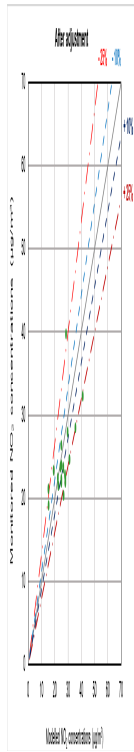


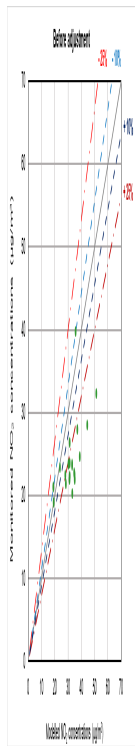


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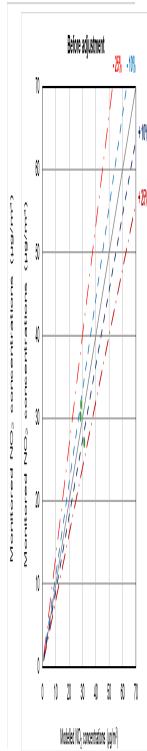




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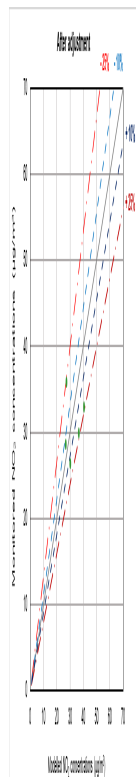
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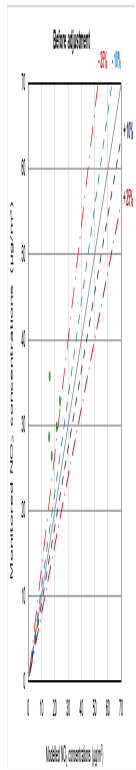


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43. APP-159 discusses model verification and paragraph 3.1.1 includes the following statement on comparing modelled and measured NO<sub>2</sub> values, “Should the model results for NO<sub>2</sub> be largely within ±25 % of the measured values and there is no systematic over or under-prediction of concentrations, then the Defra guidance (TG22) (Defra, 2022) advises that no adjustment is necessary.” This supports a nearly 50% range of results variation.

- a. The following paragraphs then state that, “Modelled results may not compare as well at some locations for a number of reasons including:
- b. Uncertainties in estimated traffic flow and speed data;
- c. Model set up (including street canyons, road widths, receptor locations);
- d. Model limitations (treatment of roughness and meteorological data);
- e. Uncertainty in monitoring data (notably diffusion tubes, e.g. bias adjustment factors and annualisation of short-term data);
- f. Uncertainty in estimates of background concentrations; and
- g. Uncertainty in emissions/emission factors.

44. APP-159, paragraph 3.1.3 notes that the above factors were investigated as part of the model verification, stating that, “From the monitoring data in the study area for 2018, the baseline year for the study, 247 sites were selected for inclusion in the model verification exercise (see Figures 3.3.1 and 3.3.2 for locations). The justification for the exclusion for the other 173 monitoring sites is provided in APP-159, Table 3.2.1.” **This does suggest the modelled results should be treated with caution.** And APP-159, paragraph 3.3.1 underlines this with the statement “As described in Section 3.1, there are a number of reasons why modelling and monitoring results differ. **At the majority of sites, it can be observed that there is tendency for the model to under-estimate NO<sub>2</sub> concentrations** and therefore an adjustment to the modelled concentrations was considered suitable.”

45. APP-159, paragraph 3.3.3 adds that, “Eight zone specific factors were derived where the modelling performance was significantly different and required area specific adjustment taking into account local regions within the study area. [Appendix/Table 3.3] provides details of the zones and modelled adjustment factors. Two zones, Gatwick and Merstham were derived where no adjustment factor was required for the modelled concentrations and did not require the generic verification factor. This is justified by a good agreement between modelled and monitored concentrations and model results are largely within ±25 per cent of measured values, in line with the Defra Guidance (TG22) (Defra, 2022). One zone for the M23 and M25 was derived with an adjustment factor of 0.8. To be conservative, a factor of 1 was used to apply the model results. 3.3.4 A generic verification factor of 1.3 was derived for the study area which represents a non-London area with suburban and rural roads.”

46. APP-159, Table 3.3.2 then compares modelled and 2018 monitored NO<sub>2</sub> concentrations before and after adjustment, with differences before adjustment ranging from -59% to 64% and differences post adjustment ranging from -37% to 60%. This indicates that the modelling is not accurately predicting values. GACC therefore request that PINS consider requiring the existing modelling to be supported by additional monitoring alongside a regular review of the underlying assumptions on aircraft, road traffic and other emissions sources. With the majority of the emissions increase due to

the airport, it is key to that impacts are not substantially underestimated as this will mean that mitigation measures are too small to properly mitigate impacts.

**47. GACC therefore request that the model be updated to address these and other inadequacies mentioned and independently verified before it is considered acceptable as a basis for understanding the air quality impacts of the project and for discounting mitigation measures. A rolling monitoring and emission inventory improvement exercise should be employed for a development of this magnitude.**

#### **8.4.2 Methodology for Model Adjustments**

48. The modelling adjustments are needed, as there are eight zones where the actual pollution levels found were not correctly modelled. This is because the air pollution model created does not support the actual air quality levels and highlights insufficient monitoring inputs to the model.

49. In APP-159, paragraph 3.1.4 it is noted that the ... *“model verification was reviewed following the PEIR (Preliminary Environmental Information Report) to take into account all feedback during consultation and engagement. The key points of feedback were all addressed and the model verification is improved compared with the PEIR, with fewer zones, improved correlation between modelled and monitored results. The requested data for the verification statistics has also been provided. The results of model verification were presented at the air quality topic working group in November 2022, and the results and processes were agreed.”*

50. As presented in APP-159, paragraph 3.1.1 the modelled values are adjusted based on the observed relationship between modelled and measured NO<sub>x</sub> concentrations to provide better agreement. It is unclear how this can be applied at a variety of urban, rural, close to road and far from road sites of different traffic levels and with a variety of other factors affecting how much of the oxides of nitrogen are converted to nitrogen dioxide (the main component that air quality standards are in place for). Temperature, presence of other pollutants (specifically ozone levels), emissions source types and dispersion characteristics affect NO<sub>x</sub>. TG22 is the technical guidance referred to in the Appendix though this explicitly excludes London.

51. These assumptions have been made using a crude methodology. Adjustment factors to bridge the misalignment between the monitoring and model have been generated by simple line fitting applied to datasets that likely have multi-dimensional aspects and would be more expertly treated via refinement in monitoring, emission predictions, weather data, additional model refinements and multivariate analysis for model verification. A project of this scale should not be adopting such basic adjustment factors to force the modelled results to fit measured values. This papers over the fact that the modelling itself is woefully inadequate, and with no credibility attached to the adjustment factors, it should not be assumed that this gives a good indication of what air quality levels might occur in future years.

52. GACC express concern regarding the use of generic verification factors (e.g. see 3.3.34 and Table 3.3.1 in APP-159).



53. GACC are also concerned by the way the figures have been adjusted (see diagrams 3.3.1 – 3.3.12 in APP-159), in some cases where these adjustments are based on just two data points.

54. GACC suggest that the current approach is not an appropriate modelling methodology. It is suggested that these adjustments should instead be made using multi-variate analysis, with the refinements in model input data discussed above.

55. The modelled versus monitored results for 2018 (the only year for which modelling has been compared with available monitoring) has been shown in APP-159 (Appendix 13.6.1: Air Quality Data and Model Verification). These data have been reviewed to show that the modelling is not accurate and should not be relied to make statements on the project's impact on air quality.

APP-159, Table 3.3.2: Comparison of Modelled and 2018 Monitored NO<sub>2</sub> Concentrations before and after Adjustment [*annual average NO<sub>2</sub> data shown*]

***(selection of data at start of table (on page 43) to show variation in modelled versus monitored data) (the full table is provided at the end of this document)***

LA ID	Type	Monitoring Authority	2018 Monitored NO <sub>2</sub> (µg/m <sup>3</sup> )	Non-adjusted Modelled NO <sub>2</sub> (µg/m <sup>3</sup> )	Difference [1] before adjustment	Adjusted Modelled NO <sub>2</sub> (µg/m <sup>3</sup> )	Difference [1] post-adjustment	Non-adjusted Modelled Road NOX (µg/m <sup>3</sup> )	Adjusted Modelled Road NOX (µg/m <sup>3</sup> )
Area with Generic Factor (selection of data)									
RB140	DT	Reigate and Banstead	22.6	23.9	6%	31	37%	14.1	18.3
MSAQ 27	DT	Mid Sussex	22.8	23	1%	29.9	31%	19.2	25
TD30	DT	Tandridge	22.8	20.2	-11%	26.3	15%	9.6	12.4
Storri ngton 17n	DT	Horsham	13.3	12.4	-7%	16.1	21%	3.6	4.7
RB114	DT	Reigate and Banstead	23.5	18.1	-23%	23.5	0%	7.7	10
Storri ngton 16n	DT	Horsham	24	16.8	-30%	21.9	-9%	10.1	13.1
TD38	DT	Tandridge	24.2	22.1	-9%	28.7	18%	11	14.3
RB167	DT	Reigate and Banstead	24.7	18.4	-25%	24	-3%	3.3	4.3
RB113	DT	Reigate and Banstead	24.9	16.8	-32%	21.9	-12%	5.7	7.5
CR79	DT	Crawley	25	22.7	-9%	29.5	18%	12.7	16.5
RB95	DT	Reigate and Banstead	25.1	21.4	-15%	27.9	11%	10.4	13.5
CR88	DT	Crawley	26	17.6	-32%	22.9	-12%	8.4	10.9

[1] Calculated as  $([\text{modelled} - \text{monitored}] / \text{monitored})$

DT – diffusion tube, CM – continuous monitor

56. The above selection of data from the report pertains to annual average NO<sub>2</sub> data – nitrogen dioxide has health limits set for exposure over an hour and over a year, related to the different types of health impacts the pollutant is associated with. For example, on high pollution days, there may be more lung irritation (e.g. asthma) and heart-related admissions to hospital due to high hourly values of the pollutant. In the longer term, chronic exposure to high levels will cause stress to developing lungs and hearts in the young and exacerbate heart and lung conditions in adults, amongst other health impacts. Nitrogen dioxide is also an important precursor to the formation of ozone, another air pollutant. Any reductions in smoking and improvements in diet can be undermined by air pollution in terms of health impacts on the general population, as described by the World Health Organisation in its global air quality guidelines.

57. The above selection of data from the start of the table shows that 2018 modelled data compared with 2018 monitored data varies from +6% to -32% in this selection alone and after the adjustment factor is applied varies from +37% to -12% for NO<sub>2</sub>. If even the baseline data for a recent year with existing monitoring data shows such a discrepancy between modelled when compared with monitored (showing a variation of 40% pre-adjustment to 50% post adjustment (in this selection alone), then extrapolating these inaccuracies onto future years with assumption heavy model inputs (for weather, traffic emissions, aircraft and other airport emissions) and adding these onto predicted background air quality levels (i.e. without the airport expansion) will only render any results more inaccurate and likely meaningless, especially with the assumption that an arbitrary zonal or generic adjustment factor can be applied in a linear manner.

58. The data from pages 44-51 (Table 3.3.2 of APP-159) is summarised below. It relates to 241 diffusion tube monitoring sites and 7 continuous monitoring sites. The diffusion tubes provide only monthly data and are “processed” to calculate an annual average NO<sub>2</sub> level. The continuous monitors take detailed readings and can provide more accurate annual average NO<sub>2</sub> levels, if calibration, maintenance and location of equipment is appropriate.

**Table 3.3.2: Comparison of Modelled and 2018 Monitored NO<sub>2</sub> Concentrations before and after Adjustment – GACC summary table of table data review (248 locations)**

	2018 Monitored NO <sub>2</sub> (µg/m <sup>3</sup> )	Non-adjusted Modelled NO <sub>2</sub> (µg/m <sup>3</sup> )	Difference before adjustment	Adjusted Modelled NO <sub>2</sub> (µg/m <sup>3</sup> )	Difference post-adjustment	Non-adjusted Modelled Road NOx (µg/m <sup>3</sup> )	Adjusted Modelled Road Nox (µg/m <sup>3</sup> )
Min	13.3	12.4	-59%	15.2	-37%	2.2	2.2
Max	67.8	51.3	64%	58.0	60%	79.7	63.8
Ave	31.5	26.4	-13%	31.5	1%	17.7	21.0

59. As can be seen from the above summary, the measured nitrogen dioxide (NO<sub>2</sub>) levels vary from 13.3 to 67.8 with an average of 31.5. The modelled values range from -59% to +64%. The table comprises 241 diffusion tube results and 7 continuous monitoring results, with modelled comparison data showing a wide deviation, with a range of -37% to 60% differences post adjustment.

The below table shows the values for continuous monitoring sites only.

LA ID	Type	Monitoring Authority	2018 Monitored NO <sub>2</sub> (µg/m <sup>3</sup> )	Non-adjusted Modelled NO <sub>2</sub> (µg/m <sup>3</sup> )	Difference before adjustment	Adjusted Modelled NO <sub>2</sub> (µg/m <sup>3</sup> )	Difference post-adjustment	Non-adjusted Modelled Road Nox (µg/m <sup>3</sup> )	Adjusted Modelled Road Nox (µg/m <sup>3</sup> )
HO5	CM	Horsham	28.4	19.6	-31%	31.4	10%	13.5	21.6
RG6	CM	Reigate and Banstead	24.9	30.2	21%	30.2	21%	7.6	7.6
CA2	CM	Crawley	25	24.4	-2%	24.4	-2%	8.9	8.9
LGW3	CM	Crawley	30	36.7	22%	36.7	22%	6.4	6.4
RG1	CM	Reigate and Banstead	18.8	21.7	16%	21.7	16%	4	4
CR7	CM	Croydon	31	28.7	-7%	34.5	11%	16	19.3
RG7	CM	Reigate and Banstead	47.4	35	-26%	42	-11%	39.8	47.8
		Minimum	18.8	19.6	-31%	21.7	-11%	4.0	4.0
		Maximum	47.4	36.7	22%	42.0	22%	39.8	47.8
		Average	29.4	28.0	-1%	31.6	10%	13.7	16.5

60. The above table shows that the annual monitored NO<sub>2</sub> values at the continuous monitoring sites range from 18.8 to 29.4 and the model pre-adjustment varies from -31% to + 22% from those values and -11% to + 22% post adjustment. Similarly to the table including diffusion tube results, the modelling pre- and post- adjustment has poor correlation with monitored values.
61. In the above review tables, GACC has summarised its review of the table listing the modelled and monitored NO<sub>2</sub> values, before and after adjustment factors have been employed. 247 locations have been used (248 including a site with two monitors), mainly diffusion tube monitoring sites (crude monthly average monitoring devices) and a small number of more accurate (if correctly calibrated, maintained and located) continuous monitoring devices. APP-159, paragraph 3.2.1 states, "All NO<sub>2</sub> monitoring location sites (420 in total) within 200 m from the ARN with monitoring data in 2019, were investigated and are listed in Table 3.2.1." The following paragraph states, "From the monitoring data in the study area for 2018, the baseline year for the study, 247 sites were selected for inclusion in the model verification exercise (see Figures 3.3.1 and 3.3.2 for locations)."
62. Ideally a summary of the monitoring site quality should also be provided. There are typically many gaps in monitoring data availability, as shown in the table in APP-159, Table 3.2.2: Justification for Exclusion of Monitoring Site. These justifications range from incomplete data to too close to roadside, or too far from roadside. These latter sites might warrant inclusion to show whether they are more or less accurate than other locations in terms of model versus monitoring site data comparisons. To reduce the comparison exercise from 420 to 247 sites is quite a significant reduction in monitoring data for comparison with the model.
63. Section 3.3 of APP-159 describes the model verification zones used. Basic statistical algorithms have been used to adjust modelled values to better correspond with

monitored values. These relationships are assumed to hold for with development and future year scenarios.

64. A more rigorous modelling exercise would have compared modelled values with monitored values for a number of years to test the reliability of the modelled values, given the importance placed on the model predictions of air quality for future years, when monitored values are of course not yet available.
65. **As a result, the predicted air quality results are meaningless.** The modelling is unreliable – so it cannot be trusted to predict likely air quality levels arising currently or in the future, with or without the airport expansion.
66. The approach to data adjustment renders the conclusions of the sensitivity tests presented in APP-168: Air Quality Sensitivity Tests meaningless, since they are comparing crudely adjusted data with and without the project and inferring insignificant impacts of the project on annual air quality levels. If there is a poor relationship between 2018 modelled and monitored levels, with a poor adjustment to attempt to better align the data, it is unlikely that predictions for future years, where no monitoring data are yet available, and where multiple assumptions are combined in the modelling, have any reliability. The use of decimal points in the data displayed in those tables isn't warranted by the modelling quality. Similar conclusions should be drawn for the air quality modelling results presented in Appendix 13.9.1 (APP-162-167).
67. **GACC does not support the crude way in which modelling adjustments have been made, without consideration of multi-variate analysis based on statistically inadequate data sets.**

#### 8.4.3 Review of Assumptions and Feedback of Improved Monitoring to Improve Results

68. The only way to know whether or not future air quality levels have been underestimated is to have sufficiently granular annual reviews going forward.
69. **Therefore, GACC propose that GAL is required to feedback the results of better monitoring (and emissions inventory data) through detailed annual reviews and regular emissions inventory and model input and output checks to be carried out throughout the lifetime of the project and results published.**

## 8.5 Results

### 8.5.1 Impact of Poor Quality Model

70. The results (i.e. APP-162-167) are wholly reliant on the modelled levels of air quality. However, if the modelling underestimates impacts then the future assumptions could be obscuring a larger (and therefore more significant) impact.

### 8.5.2 Results clarity

71. GACC request that GAL improve the clarity of the model output reporting for both modelled baseline emissions and modelled operational emissions.

72. The Air Quality Action Plan and Dust Management Plan should also be provided for scrutiny through the DCO process as noted by CBC (Relevant Representation), SCC (Relevant Representation), RBBC (Relevant Representation) and others.

73. GACC would expect air quality levels to be predicted at AQMAs and at receptors with the highest impact from project stages and at the receptors that are considered likely to exceed standards with or without project. GACC request that these to be tabulated rather than just presented within the body of the report as these values are particularly relevant to compare and contrast (e.g. in section 13.10). Therefore, GACC would like further details to be shared as to the impact of Gatwick's expansion on the measured impacts within existing AQMAs around the airport. For example, Reigate and Banstead Borough Council (Relevant Representation) highlight their concern on impacts to the AQMA in Horley, including the Horley Gardens Estate and properties to the north of the M23 spur road in Horley, and the AQMA in Hooley (near Merstham) - both during the operational and construction phases of the project. This includes the impact of ultrafine particles.

74. GACC request confirmation as to whether the new schools in the Three Bridges AQMA (on Gatwick Road and Hazelwick Avenue, including The Gatwick School) have been included in terms of their contribution to traffic baseline emissions.

75. GACC reference also TDC's comments (APP-157) regarding the high concentrations observed at air quality monitoring sites on Godstone High Street. Can GAL please identify the impacts and baseline levels at these sites, and confirm whether (and how) these baseline increases have been included in the modelling.

### 8.5.3 Significance of project impacts

76. GACC notes TDC's comments on the underestimation of modelled NO<sub>x</sub> versus monitored NO<sub>x</sub> at roadside sites (APP-157). This highlights the need to review the significance criteria and verify the modelling with future monitoring.

77. GACC refer also to RBBC's comment (APP-157) on the significant impact of the airport on NO<sub>2</sub> emissions. RBBC commented that ... "*The WHO recently reduced the recommended annual limit value for nitrogen dioxide from 40 µg/m<sup>3</sup> to 10 µg/m<sup>3</sup> based on a better understanding of the impact of nitrogen dioxide on human health. In 2032 (with the project) nitrogen dioxide concentrations to the north of the airport at residential premises are modelled to be in the range 20 to 27 µg/m<sup>3</sup>, with around 50% of the nitrogen dioxide exposure due to the airport. Thus by 2032 the airport will still be having a significant impact on residents' health.*" With this in mind please set out the level of mitigations that are in place that would address the need to comply with air quality standards should these be updated to reflect the updated WHO guidelines that reflect the increased awareness of NO<sub>2</sub> health impacts.

78. In comparing the project impacts against air quality standard the assessment currently states that the project impacts are insignificant as the changes are <1%. However, UKHSA (Relevant Representation) noted that APP-038, Table 13.5.3 shows an increase in long-term air pollution concentrations of between 103-108% of the Air Quality Standard, which equates to a moderate impact in the applicant's matrix (although this is not reflected in the text of the environmental assessment text). Also,

this ignores the extent to which GAL project is undermining true future baseline, and noting the deficiencies of the model. So, if the current modelling under-estimates impacts this could easily result in changes in air pollution increasing from 1% to 2%+. Therefore, it is questioned as to whether the air pollution impact is insignificant, as claimed.

79. Also, the assessment matrix for long-term average concentrations (which are assumed to be annual mean values – please confirm) is set out in APP-038, Table 13.5.3. This starts to assess significance at 75% or less and 76-95% of the standard. This appears inappropriate for developments of this scale where baseline and operational impacts have a substantial risk of being underestimated.

80. Addition to the 50% and 80% significance thresholds is proposed. In addition, it is proposed that a review of proposed 2029, 2032 and 2038 road and air traffic levels be made, together with concentrations of air quality at key receptors including baseline areas to provide information for future airport and other major infrastructure developments.

#### 8.5.4 Changes to CARE facility

81. The variation proposed in the letter reference TR020005/ PD-008 setting out the proposed project changes (AS-113, Table 1.1, Project Change 1) includes to, “*Remove the incineration of waste on site by changing the CARE facility to a become a waste sorting facility only.*” The affects of the change to remove this food waste treatment facility (APP-038, paragraph 13.10.184) should be provided. Similarly the changes as a result of the decision to no longer carry out incineration on site should be documented. This change is expected to result in an increase in transportation movements during airport operations – increasing some air pollutants, whilst reducing others.

#### 8.5.5 Construction phase

82. **GACC suggest that rather than peak air pollution emissions being assumed to be during the first full year for each phase of construction (without this rationale being supported by analysis) the levels of construction traffic should be assessed every year, so that the changes in overall traffic mix (with predicted operational traffic increasing year by year) is assessed for each year.** GACC is concerned that the current approach might have the potential to underestimate traffic levels (and therefore related emissions) as there may be a higher combination of construction and operational traffic emissions in the later stages of the project. It may be that higher traffic numbers with increased congestion later in each construction phase may outweigh the advantages of reductions in emissions per vehicle anticipated if emissions reductions continue in line with DfT forecasts.

83. GACC require clarity as to whether concrete batching plant emissions include VOCs, CO and potentially other substances (in addition to NOx and PM). This would be consistent with emission calculators for such plant.

84. With regard to construction emissions locations ("activity areas" for NRMM, concrete batching) the potential to underestimate receptor impacts due to the assumptions about where emissions occur should be checked.

85. Clarity as to the data underpinning Tables 13.7.3 and 13.7.4 (both in APP-038) is required. Can the annual emissions calculations be separated for each non-airport AQMA road and other non-airport roads?

86. Also, please can GAL explain why in Table 13.10.1 (APP-038) the 2024 and 2029 NOx road emissions are presented as having lower values with the project than in the case without the project?

87. With regard to the concrete batching plant and construction phase emissions, GACC share concerns raised by RBBC (APP-157) regarding the proposed South Terminal Roundabout Contractor Compound (in response to paragraph 5.4.29 [of the PEIR]) which appears to be the largest and longest lasting of the compounds. The proposal ignores the potential impact of the construction and occupation of the Horley Business Park site, to the north of the proposed contractor compound, should it take place alongside the airport related construction activities. RBBC have also raised concerns regarding the presence of a substantial concrete batching plant and the use of the site as a contractor transport depot at this location whilst there are other potential sites inside the airport's boundary that could serve this purpose.

88. GACC are also concerned that efforts to minimise construction related traffic on and off site in order to minimise air pollution and carbon emissions have not been explored. GAL should state why they are not proposing to locate a construction site alongside the railway, and combine this with movement of bulky materials required for the project by rail. Similarly GAL should consider piping of concrete across the site. These, together with use of a consolidation centre<sup>96</sup>, would minimise on and offsite construction vehicles and hence construction vehicle related air pollution. GACC share RBBC's concern regarding the dust, noise and light implications of this compound. Specific mitigation measures for coincidental impacts should be outlined.

89. For clarity, timescales and locations of potential construction impacts, as requested by RBBC (APP-157), supported by clear maps should be provided ... *"It would be useful if the construction dust buffer maps Figure 13.9.1+ could be presented in terms of project phasing, so that all of the sites operating at a given time and thus potentially overlapping could be seen on one map."*

90. Finally, GACC are concerned about the separation of construction and operational assessments for the period 2029-2032, which is likely to result in an underestimation of the overall and actual pollution concentrations experienced by residents during this period – as highlighted by RBBC (Relevant Representation) and SCC (Relevant Representation).

#### **8.5.6 Ecological impacts**

91. It would appear that the overall 24-hour NOx impact has not been assessed which ignores the risks of short-term acid depositions versus long-term risks. GAL should provide the source justification for this (see APP-038, paragraph 13.5.43).

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<sup>96</sup><https://www.worldconstructionnetwork.com/projects/terminal-5-heathrow/>

92. The degree to which the project contribution compares to national ceilings hasn't been quantified except with respect to possible mitigations. GACC request that GAL confirm why this has not been done, especially when emissions totals are set out for other receptors. Similarly, what is the justification for the sulphur dioxide (SO<sub>2</sub>) being excluded from the Habitats /Natura 2000 sites assessments?

93. For ecological sites, similarly, it is noted that significant impacts may still occur despite estimated annual levels being below standards. This is due to both vulnerabilities in modelling assumptions and due to any major infrastructure project having the potential to make a substantial deleterious impact on local air quality, especially when taking account of cumulative impacts and the potential for contributing to pollutant levels such as of ground level ozone, acid deposition and ammonia. In this regard GACC refers to the Chapter 9 Ecology - Scoping Report responses.

### 8.5.7 Odour nuisance

94. APP-038, paragraph 13.19.179 appears to undermine the usefulness of odour nuisance reporting. Instead GACC request that consideration be given to GAL funding an Environmental Health Officer to conduct visits to nuisance complainants at the time of complaint, and support this with clear and extensive advertising of this availability. This should address what appears to be a reduction in the public awareness of local authority odour nuisance reporting processes over the past decade. Alternatively, consideration should be given to the use of a gas chromatography – mass spectrometry (GC-MS) monitor to pick up VOC concentrations near complaint locations to identify if certain hydrocarbons are the main causes. A clear log of odour complaints with the time and location of each is clearly needed, as demonstrated by the paucity of data in APP-038, paragraph 13.10.183.

95. Finally, APP-038, paragraph 13.10.187 refers to aviation fuel odour at Horley Gardens Estate and under certain weather conditions. However, it is not clear whether these are the type of weather conditions that are predicted to increase with climate change predictions? Therefore, GACC requests that the applicant be requested to provide: a) an estimate of the quantity and distribution of unburnt fuel emitted from ground operations, aircraft taxiing and air movement of aircraft to and from Gatwick; and b) what additional measures they are proposing to reduce the VOC impacts on key receptors, such as residential areas in close vicinity to the airport. In addition, consideration should be given as to whether a GCMS survey has – or should – be undertaken to profile the emissions as higher risk VOCs might be behind odour incidences, creating an air quality hazard risk that exceeds that of odour alone.

### 8.5.8 Health impacts, Costs and Mitigation measures

96. MVDC and others raised concerns about how the Sussex requirement for damage cost calculations/ Impact Pathway Assessment was carried out. The assessment evaluates the health damage impacts associated with transport emissions from the project to inform the Air Quality mitigation required. The Economic Impact Report suggests an impact of between £12-423 million. The response to these comments (APP-157) by GAL is not supported. GACC notes that this does not appear to propose a robust approach, noting that UK airports lag in best practice measures compared with many other developed world airports. **GAL should undertake further work to obtain a robust**



**social cost figure and apply a more robust approach that properly informs mitigation measures in the Air Quality Mitigation Strategy.**

97. GACC concur with Salfords and Sidlow Parish Council's comments (APP-157) questioning how the increase in off airport parking and congestion is proposed to be offset. For example, will Gatwick consider a Clean Air Order appropriate to reduce pollution on local roads?"

**Table 3.3.2: Comparison of Modelled and 2018 Monitored NO2 Concentrations before and after Adjustment** (from pages 44-51 of APP-159)

Area with Generic Factor	LA ID	Type	Monitoring Authority	2018 Monitored NO2 (µg/m3)	Non-adjusted Modelled NO2 (µg/m3)	Difference1 before adjustment	Adjusted Modelled NO2 (µg/m3)	Difference1 post-adjustment	Non-adjusted Modelled Road NOx (µg/m3)	Adjusted Modelled Road NOx (µg/m3)
Area with Generic Factor	RB140	DT	Reigate and Banstead	22.6	23.9	6%	31	37%	14.1	18.3
	MSAQ27	DT	Mid Sussex	22.8	23	1%	29.9	31%	19.2	25
	TD30	DT	Tandridge	22.8	20.2	-11%	26.3	15%	9.6	12.4
	Storrington 17n	DT	Horsham	13.3	12.4	-7%	16.1	21%	3.6	4.7
	RB114	DT	Reigate and Banstead	23.5	18.1	-23%	23.5	0%	7.7	10
	Storrington 16n	DT	Horsham	24	16.8	-30%	21.9	-9%	10.1	13.1
	TD38	DT	Tandridge	24.2	22.1	-9%	28.7	18%	11	14.3
	RB167	DT	Reigate and Banstead	24.7	18.4	-25%	24	-3%	3.3	4.3
	RB113	DT	Reigate and Banstead	24.9	16.8	-32%	21.9	-12%	5.7	7.5
	CR79	DT	Crawley	25	22.7	-9%	29.5	18%	12.7	16.5
	RB95	DT	Reigate and Banstead	25.1	21.4	-15%	27.9	11%	10.4	13.5
	CR88	DT	Crawley	26	17.6	-32%	22.9	-12%	8.4	10.9
	DT25	DT	Sevenoaks	26.1	22.9	-12%	29.8	14%	12.8	16.6
	DT34	DT	Sevenoaks	26.1	24.6	-6%	32	23%	18.8	24.5

RB115	DT	Reigate and Banstead	26.3	20	-24%	26	-1%	10.7	13.9
RB107	DT	Reigate and Banstead	27	18.8	-30%	24.5	-9%	6.1	7.9
RB111	DT	Reigate and Banstead	27.1	20.2	-26%	26.2	-3%	8.3	10.7
Horsham 7	DT	Horsham	27.4	19.4	-29%	25.2	-8%	12.2	15.8
TD35	DT	Tandridge	28.4	23.9	-16%	31	9%	14.2	18.4
RB44	DT	Reigate and Banstead	28.5	22.7	-21%	29.5	3%	12.4	16.2
TD5	DT	Tandridge	28.8	26.3	-9%	34.2	19%	17.8	23.2
CR66	DT	Crawley	29	18.9	-35%	24.6	-15%	7.5	9.8
RB45	DT	Reigate and Banstead	29.2	19.1	-34%	24.9	-15%	6.6	8.6
RB116	DT	Reigate and Banstead	29.6	22.5	-24%	29.3	-1%	12.2	15.9
CR96	DT	Crawley	30	19.9	-34%	25.8	-14%	7.3	9.4
RB109	DT	Reigate and Banstead	30.3	22.4	-26%	29.1	-4%	11.9	15.5
RB1	DT	Reigate and Banstead	30.6	19.4	-37%	25.2	-18%	7	9.1
RB122	DT	Reigate and Banstead	30.6	27.9	-9%	36.2	18%	21.5	28
RB145	DT	Reigate and Banstead	30.9	29.7	-4%	38.7	25%	23.5	30.6
RB46	DT	Reigate and Banstead	31	20	-35%	26	-16%	8	10.4
RB120	DT	Reigate and Banstead	31.5	21.5	-32%	28	-11%	10	13
RB125	DT	Reigate and Banstead	31.8	25.4	-20%	33	4%	18.3	23.8

		Banstead							
TD10	DT	Tandridge	32	24	-25%	31.2	-2%	15.3	19.9
		Reigate and							
RB152	DT	Banstead	32.4	24.5	-24%	31.9	-2%	13.3	17.2
DT84	DT	Sevenoaks	32.5	26.3	-19%	34.1	5%	20.9	27.2
		Reigate and							
RB118	DT	Banstead	32.8	20.3	-38%	26.4	-20%	8.5	11
		Reigate and							
RB150	DT	Banstead	33.1	23.3	-30%	30.3	-9%	13.6	17.6
TD11	DT	Tandridge	33.4	24.7	-26%	32.1	-4%	13.6	17.7
		Reigate and							
RB123	DT	Banstead	33.5	21.2	-37%	27.6	-18%	7.7	10.1
CR91	DT	Crawley	34	30.2	-11%	39.3	16%	12.1	15.7
		Reigate and							
RB104	DT	Banstead	34	21.3	-37%	27.7	-18%	10.2	13.3
		Reigate and							
RB47	DT	Banstead	34.8	19.5	-44%	25.3	-27%	7.1	9.3
CR98	DT	Crawley	35	22.6	-35%	29.4	-16%	11.1	14.5
		Reigate and							
RB105	DT	Banstead	35	19.5	-44%	25.4	-28%	7.2	9.3
		Reigate and							
RB117	DT	Banstead	36.3	21.6	-40%	28.1	-22%	10.7	13.9
CR62	DT	Crawley	38	29.1	-23%	37.8	-1%	21.6	28
		Reigate and							
RB49	DT	Banstead	39.2	27	-31%	35.1	-10%	21.3	27.7
CR69	DT	Crawley	40	32.3	-19%	42	5%	28.3	36.8
CR 55	DT	Crawley	41	31.6	-23%	41	0%	26.7	34.8
CR97	DT	Crawley	41	31.8	-22%	41.4	1%	29.7	38.7
Storrington 15n	DT	Horsham	18.9	15.8	-17%	20.5	9%	8.7	11.3
CR93	DT	Crawley	48	35.7	-26%	46.4	-3%	24.4	31.7

Brighton Road (airport) Zone	Storrington 14n	DT	Horsham	19.7	14.5	-27%	18.8	-4%	6.8	8.8
	CR95	DT	Crawley	31	30.8	-1%	40.1	29%	13.5	17.5
	Storrington 7	DT	Horsham	20.9	15.3	-27%	19.9	-5%	7.8	10.2
	CR89	DT	Crawley	22	19.6	-11%	25.5	16%	6.5	8.5
	RB82	DT	Reigate and Banstead	31.3	24.1	-23%	31.3	0%	17	22.1
	Storrington 6	DT	Horsham	22.3	16.9	-24%	22	-2%	10.2	13.2
	RB177	DT	Reigate and Banstead	23.8	29.3	23%	38.1	60%	22.9	29.8
	RB176	DT	Reigate and Banstead	25.5	27.6	8%	35.9	41%	19.5	25.4
	RB174	DT	Reigate and Banstead	30.3	24.9	-18%	32.3	7%	14.6	19
	RB149	DT	Reigate and Banstead	43.4	28.7	-34%	37.3	-14%	21.4	27.8
	BR15	DT	Gatwick Airport	30.2	23.9	-21%	31	3%	12	15.6
	BR15	DT	Gatwick Airport	30.2	23.9	-21%	31	3%	12	15.6
	BR16	DT	Gatwick Airport	33.6	26.5	-21%	34.4	2%	16.9	22
	BR11	DT	Gatwick Airport	34.7	32.4	-6%	42.2	22%	28.8	37.4
	BR14	DT	Gatwick Airport	35.6	25.8	-28%	33.5	-6%	15.4	20
	BR8	DT	Airport	36.9	30.5	-17%	39.7	8%	25.1	32.7
	BR2	DT	Gatwick	36.9	30.4	-18%	39.5	7%	24.9	32.4

			Airport Gatwick							
	BR6	DT	Airport Gatwick	38	33.2	-13%	43.2	14%	31.2	40.5
	BR10	DT	Airport Gatwick	38.6	32.8	-15%	42.6	10%	29.6	38.5
	BR7	DT	Airport Gatwick	39.1	33.6	-14%	43.7	12%	31.9	41.5
	BR12	DT	Airport Gatwick	39.2	26.6	-32%	34.6	-12%	16.7	21.7
	BR13	DT	Airport Gatwick	40	26.4	-34%	34.3	-14%	16.4	21.4
	BR18	DT	Airport Gatwick	41.2	27.7	-33%	36	-13%	19.3	25.1
	BR4	DT	Airport Gatwick	41.5	32	-23%	41.6	0%	28.5	37
	BR3	DT	Airport Gatwick	41.5	28.8	-31%	37.5	-10%	22	28.6
	BR9	DT	Airport Gatwick	41.6	30.1	-28%	39.1	-6%	24	31.2
	BR20	DT	Airport Gatwick	45.1	31.6	-30%	41	-9%	27.4	35.6
	BR5	DT	Airport Gatwick	46	32.7	-29%	42.5	-8%	29.9	38.9
	BR17	DT	Airport Gatwick	47.1	28.3	-40%	36.8	-22%	20.5	26.6
	BR19	DT	Airport	49	29	-41%	37.7	-23%	22.1	28.7
Cowfold Zone	Cowfold 6n	DT	Horsham	25.1	15.1	-40%	24.2	-4%	6.6	10.6
	HO5	CM	Horsham	28.4	19.6	-31%	31.4	10%	13.5	21.6

	Cowfold 4	DT	Horsham	31.4	19.6	-38%	31.3	0%	13.4	21.5
	Cowfold 3	DT	Horsham	31.8	20.8	-35%	33.2	4%	15.4	24.7
	Cowfold 1_2	DT	Horsham	35.4	20.2	-43%	32.3	-9%	14.5	23.1
	Cowfold 7n	DT	Horsham	42.4	18.3	-57%	29.4	-31%	11.5	18.5
	Cowfold 5n	DT	Horsham	24.9	18.9	-24%	30.2	21%	12.4	19.8
	CR1	DT	Crawley	33	19.9	-40%	33.8	2%	9	15.2
	CR 60	DT	Crawley	33	20	-39%	34	3%	9.1	15.5
	CR87	DT	Crawley	38	18.1	-52%	30.7	-19%	6.1	10.4
Croydon Zone	CY59	DT	Croydon	49.8	36.2	-27%	57.9	16%	24.3	38.8
	CY98b	DT	Croydon	50.8	36.2	-29%	58	14%	24.5	39.1
	CY58	DT	Croydon	67.8	34.3	-49%	55	-19%	19.9	31.9
Gatwick Zone	RB65	DT	Reigate and Banstead	22.8	20.1	-12%	20.1	-12%	3.6	3.6
	RB13	DT	Reigate and Banstead	23.1	19.7	-15%	19.7	-15%	4.2	4.2
	RB70	DT	Reigate and Banstead	23.3	21.8	-6%	21.8	-6%	4.6	4.6
	RB11	DT	Reigate and Banstead	23.9	23.1	-3%	23.1	-3%	5.3	5.3
	RB57	DT	Reigate and Banstead	24.2	28.6	18%	28.6	18%	5.6	5.6
	RB53	DT	Reigate and Banstead	24.4	21.9	-10%	21.9	-10%	4.4	4.4
	RB54	DT	Reigate and Banstead	24.5	22.1	-10%	22.1	-10%	4.4	4.4
	RB58	DT	Reigate and Banstead	24.7	29.2	18%	29.2	18%	6.3	6.3
	RB69	DT	Banstead	24.7	22.7	-8%	22.7	-8%	4.9	4.9

RB98	DT	Reigate and Banstead	24.7	23.8	-4%	23.8	-4%	7.8	7.8
RB55	DT	Reigate and Banstead	24.8	22.8	-8%	22.8	-8%	4.7	4.7
RG6	CM	Reigate and Banstead	24.9	30.2	21%	30.2	21%	7.6	7.6
RB60	DT	Reigate and Banstead	24.9	28.5	15%	28.5	15%	5.7	5.7
CA2	CM	Crawley	25	24.4	-2%	24.4	-2%	8.9	8.9
CR48	DT	Crawley	25	24.8	-1%	24.8	-1%	15.7	15.7
RB52	DT	Reigate and Banstead	25	20.2	-19%	20.2	-19%	4.3	4.3
RB72	DT	Reigate and Banstead	25.1	20.9	-17%	20.9	-17%	4.4	4.4
RB12	DT	Reigate and Banstead	25.3	20.3	-20%	20.3	-20%	5	5
RB78	DT	Reigate and Banstead	25.5	29.8	17%	29.8	17%	7	7
RB59	DT	Reigate and Banstead	26.5	31	17%	31	17%	8.7	8.7
RB175	DT	Reigate and Banstead	27.5	23.3	-15%	23.3	-15%	12.3	12.3
LGW3	CM	Crawley	30	36.7	22%	36.7	22%	6.4	6.4
RB80	DT	Reigate and Banstead	31.4	29.8	-5%	29.8	-5%	7	7
RB79	DT	Reigate and Banstead	32.5	29.8	-8%	29.8	-8%	7	7
CR74	DT	Crawley	34	21.4	-37%	21.4	-37%	8.6	8.6
CR49	DT	Crawley	18	17.8	-1%	17.8	-1%	2.2	2.2
RG1	CM	Reigate and Banstead	18.8	21.7	16%	21.7	16%	4	4



		Banstead Reigate and							
RB76	DT	Banstead Reigate and	19.6	20	2%	20	2%	3.1	3.1
RB77	DT	Banstead Reigate and	19.8	19.8	0%	19.8	0%	3	3
RB51	DT	Banstead	20.8	19.5	-6%	19.5	-6%	4.1	4.1
CR50	DT	Crawley	21	17.9	-15%	17.9	-15%	3.3	3.3
CR75	DT	Crawley	21	17	-19%	17	-19%	4.7	4.7
RB61	DT	Banstead Reigate and	21.3	23.4	10%	23.4	10%	4.6	4.6
RB64	DT	Banstead Reigate and	21.6	20.4	-6%	20.4	-6%	3	3
RB68	DT	Banstead Reigate and	21.7	21.7	0%	21.7	0%	3.6	3.6
RB75	DT	Banstead	21.9	21.2	-3%	21.2	-3%	6.1	6.1
CR51	DT	Crawley	22	23.6	7%	23.6	7%	10.2	10.2
RB73	DT	Banstead Reigate and	22	20.5	-7%	20.5	-7%	4.2	4.2
RB56	DT	Banstead Reigate and	22.2	23.5	6%	23.5	6%	4.8	4.8
RB74	DT	Banstead Reigate and	22.3	22.4	0%	22.4	0%	6.4	6.4
RB66	DT	Banstead Gatwick	22.5	20.3	-10%	20.3	-10%	3.2	3.2
BR1	DT	Airport	30.4	25	-18%	25	-18%	14.5	14.5
Hassocks Zone	DT	Mid Sussex	28.7	14.6	-49%	29.2	2%	6.2	12.4

Hazelwick Roundabout Zone	MSAQ12	DT	Mid Sussex	33.5	17.6	-47%	35.2	5%	10.7	21.4
	MSAQ23	DT	Mid Sussex	34.5	16.3	-53%	32.6	-6%	8.7	17.4
	MSAQ11	DT	Mid Sussex	40.1	16.5	-59%	33	-18%	9	18
	MSAQ10	DT	Mid Sussex	41.2	22.2	-46%	44.5	8%	18.2	36.5
	CR76	DT	Crawley	35	31.8	-9%	38.1	9%	15.3	18.4
	CR77	DT	Crawley	35	27.4	-22%	32.9	-6%	6.4	7.7
	CR64	DT	Crawley	40	33.8	-16%	40.5	1%	19.7	23.7
	CR63	DT	Crawley Gatwick	52	38.7	-26%	46.4	-11%	31.7	38
	HR1	DT	Airport Gatwick	28.8	29.4	2%	35.2	22%	10.2	12.3
	HR2	DT	Airport Gatwick	30.2	30	-1%	35.9	19%	11.4	13.7
	HR16	DT	Airport Gatwick	30.3	31.3	3%	37.6	24%	14.3	17.2
	HR15	DT	Airport Gatwick	32.5	31.2	-4%	37.4	15%	14	16.7
	HR7	DT	Airport Gatwick	34.2	31.3	-8%	37.6	10%	14.3	17.2
	HR17	DT	Airport Gatwick	36.3	34.2	-6%	41.1	13%	32.7	39.2
	HR4	DT	Airport Gatwick	36.7	33	-10%	39.6	8%	17.9	21.5
	HR20	DT	Airport Gatwick	37.3	31.6	-15%	38	2%	15	18
	HR8	DT	Airport Gatwick	41.4	32.7	-21%	39.3	-5%	17.3	20.8
	HR18	DT	Airport	42	34.8	-17%	41.7	0%	34	40.8

London Zone	HR5	DT	Gatwick Airport Gatwick	45.7	37.8	-17%	45.4	-1%	29.5	35.4
	HR11	DT	Airport	22.5	29.1	29%	34.9	55%	9.7	11.6
	RB193	DT	Reigate and Banstead	24.6	28.1	14%	33.7	37%	24.8	29.8
	RB191	DT	Reigate and Banstead	26.5	30.4	15%	36.5	38%	29.5	35.4
	RB196	DT	Reigate and Banstead	26.8	24.6	-8%	29.5	10%	18.3	21.9
	RB187	DT	Reigate and Banstead	27	31.8	18%	38.1	41%	32.4	38.9
	RB192	DT	Reigate and Banstead	28.5	30.2	6%	36.2	27%	29.1	34.9
	RB215	DT	Banstead	29	27.5	-5%	33.1	14%	23.8	28.5
	H2	DT	Sutton	26.8	23.5	-12%	28.1	5%	7.9	9.4
	RB182	DT	Reigate and Banstead	30.3	22.6	-25%	27.1	-10%	14.8	17.7
	EE6	DT	Epsom and Ewell	30.4	31.2	3%	37.4	23%	21.6	25.9
	ST24	DT	Sutton	28.9	25.5	-12%	30.6	6%	7.4	8.9
	RB190	DT	Reigate and Banstead	30.7	33.1	8%	39.7	29%	35.3	42.4
	RB186	DT	Banstead	30.8	31.3	2%	37.6	22%	31.5	37.8
	CR7	CM	Croydon	31	28.7	-7%	34.5	11%	16	19.3
	RB189	DT	Reigate and Banstead	31.4	34.2	9%	41	31%	37.8	45.4
	RB188	DT	Reigate and	32.2	36.8	14%	44.1	37%	44	52.8

H1	DT	Banstead Sutton	30	24.9	-17%	29.9	0%	10.4	12.5
RB194	DT	Reigate and Banstead	32.5	28.7	-12%	34.4	6%	26	31.2
ST36	DT	Sutton	29.3	26.6	-9%	32	9%	12	14.4
RB214	DT	Reigate and Banstead	33.1	27.2	-18%	32.6	-1%	23.1	27.7
RB199	DT	Reigate and Banstead	34.1	27.8	-19%	33.3	-2%	24.2	29
BL	DT	Sutton	29	24.7	-15%	29.6	2%	7	8.4
RB201	DT	Reigate and Banstead	34.2	28.4	-17%	34.1	0%	25.4	30.5
RB206	DT	Reigate and Banstead	34.5	32.3	-6%	38.7	12%	33.6	40.3
RB184	DT	Reigate and Banstead	34.8	29.4	-16%	35.2	1%	27.4	32.9
	DT	Kingston Upon Thames	34.9	27.2	-22%	32.6	-7%	21.3	25.5
RB207	DT	Reigate and Banstead	35.2	32.7	-7%	39.2	11%	34.4	41.3
RB197	DT	Reigate and Banstead	36.2	28.9	-20%	34.6	-4%	26.4	31.6
RB183	DT	Reigate and Banstead	36.4	27.3	-25%	32.7	-10%	23.2	27.9
RB213	DT	Reigate and Banstead	36.5	27.6	-24%	33.2	-9%	24	28.8
RB211	DT	Reigate and Banstead	36.6	28.7	-22%	34.4	-6%	26	31.2
2 (GA)	DT	Merton	36.7	30	-18%	36	-2%	18.4	22.1

MSAQ19	DT	Mid Sussex Reigate and	17.4	15.8	-9%	19	9%	8	9.6
RB204	DT	Banstead Reigate and	36.8	32	-13%	38.4	4%	32.9	39.5
RB203	DT	Banstead Reigate and	36.9	30.8	-16%	37	0%	30.5	36.5
RB195	DT	Banstead	37	31.1	-16%	37.3	1%	30.9	37.1
ST22	DT	Sutton	36.1	32.1	-11%	38.5	7%	27.2	32.6
CY42	DT	Croydon Reigate and	37.3	33.6	-10%	40.3	8%	23.7	28.4
RB202	DT	Banstead	37.7	30.2	-20%	36.2	-4%	29	34.8
CY52	DT	Croydon Reigate and	37.8	29.9	-21%	35.9	-5%	17.5	21
RB198	DT	Banstead Reigate and	38.2	28.7	-25%	34.4	-10%	26.1	31.3
RB219	DT	Banstead Reigate and	39.2	25.9	-34%	31.1	-21%	20.7	24.8
RB210	DT	Banstead Reigate and	39.3	29.8	-24%	35.8	-9%	28.4	34
RB212	DT	Banstead	39.3	28.2	-28%	33.8	-14%	25	30
ST39	DT	Sutton	40.7	30.1	-26%	36.1	-11%	17.7	21.2
CY48	DT	Croydon Reigate and	39.5	31.2	-21%	37.4	-5%	17.3	20.7
RB146	DT	Banstead Kingston Upon	40.4	30.1	-26%	36.1	-11%	28.9	34.6
	15 DT	Thames	41	28.6	-30%	34.3	-16%	16.2	19.4
ST29	DT	Sutton Reigate and	38.9	26.4	-32%	31.6	-19%	13.4	16.1
RB200	DT	Banstead	42.1	29.1	-31%	35	-17%	26.9	32.3

			Reigate and							
	RB216	DT	Banstead	42.5	28.8	-32%	34.5	-19%	26.2	31.4
			Reigate and							
	RB218	DT	Banstead	42.6	31.6	-26%	37.9	-11%	32	38.4
	ST34	DT	Sutton	38.9	28.1	-28%	33.7	-13%	14.2	17.1
		53	Merton	43.1	26.5	-38%	31.8	-26%	11.6	13.9
			Reigate and							
	RB137	DT	Banstead	43.2	28.5	-34%	34.2	-21%	25.7	30.8
			Reigate and							
	RB217	DT	Banstead	43.2	29.7	-31%	35.7	-17%	28.2	33.8
			Reigate and							
	RB205	DT	Banstead	44	35.4	-20%	42.5	-3%	40.7	48.8
			Reigate and							
	RB136	DT	Banstead	45.9	39.4	-14%	47.2	3%	50.6	60.7
			Reigate and							
	RB181	DT	Banstead	47	28.1	-40%	33.7	-28%	24.9	29.8
			Reigate and							
	RG7	CM	Banstead	47.4	35	-26%	42	-11%	39.8	47.8
			Reigate and							
	RB208	DT	Banstead	53	33.6	-37%	40.3	-24%	36.4	43.6
	CY99	DT	Croydon	33.9	26.6	-22%	31.9	-6%	9	10.9
M23 and M25 Zone										
	MV12	DT	Mole Valley	22.8	34.6	52%	27.7	21%	36.1	28.9
			Reigate and							
	RB102 2	DT	Banstead	23.4	23.9	2%	19.1	-18%	18.6	14.9
	MV6	DT	Mole Valley	23.7	33	39%	26.4	12%	31.4	25.2
			Reigate and							
	RB36	DT	Banstead	23.8	33	39%	26.4	11%	30.4	24.3
			Reigate and							
	RB43	DT	Banstead	23.8	30.3	27%	24.2	2%	24.5	19.6

Merstham Zone	CR81	DT	Crawley Reigate and	24	31.2	30%	24.9	4%	31.7	25.4
	RB27	DT	Banstead Reigate and	24.7	38.8	57%	31.1	26%	49.3	39.5
	RB34	DT	Banstead	26.4	31.2	18%	24.9	-6%	30.4	24.3
	CR80	DT	Crawley	28	37.1	32%	29.6	6%	47.5	38
	MV10	DT	Mole Valley	28.5	44.5	56%	35.6	25%	62.4	49.9
	DT12	DT	Sevenoaks	39.8	35.7	-10%	28.5	-28%	40.9	32.7
	TD19	DT	Tandridge Runnymede	19.2	19.1	0%	15.3	-20%	9.8	7.9
	RY8	DT	e Runnymede	22.5	34.9	55%	27.9	24%	34.7	27.7
	RY19	DT	e Reigate and	32.3	51.3	59%	41.1	27%	79.7	63.8
	RB33	DT	Banstead	20.3	33.2	64%	26.6	31%	34.9	27.9
	TD26	DT	Tandridge Reigate and	21.1	19	-10%	15.2	-28%	10	8
	RB29	DT	Banstead Reigate and	21.5	28.4	32%	22.7	6%	25.6	20.5
	RB30	DT	Banstead Reigate and	22	31.1	42%	24.9	13%	30.8	24.6
	RB37	DT	Banstead	22	35	59%	28	27%	34.5	27.6
	MV11	DT	Mole Valley	22.3	31.2	40%	24.9	12%	28.5	22.8
	MSAQ7	DT	Mid Sussex Reigate and	22.5	28	24%	22.4	-1%	26.1	20.9
	RB110	DT	Banstead Reigate and	27.1	31.4	16%	31.4	16%	26.4	26.4
	RB20	DT	Banstead Reigate and	30.3	28.5	-6%	28.5	-6%	20.5	20.5
RB124	DT	Banstead	31.7	29	-9%	29	-9%	21.4	21.4	

Storrington Zone	Storrington 5	DT	Horsham	26.4	17.8	-33%	30.2	14%	11.5	19.6
	Storrington 12n	DT	Horsham	28.6	15.8	-45%	26.8	-6%	8.5	14.5
	Storrington 13n	DT	Horsham	29.9	21.6	-28%	36.6	23%	17.7	30
	Storrington 3	DT	Horsham	32.9	23.9	-27%	40.6	23%	21.7	36.8
	Storrington 4	DT	Horsham	35.8	16.1	-55%	27.4	-24%	9	15.3





## Section 9. Water Supply, Waste Water and Flood Risk Assessment

### 9.1 Summary

1. This representation considers the impact on water supply, wastewater management and flooding, and the River Mole water environment: including river habitat, water quality and access for recreation/health and wellbeing.
2. It is our view that the shorter return period chosen by GAL for the airfield is not acceptable and that a 100-year design life, and the climate change allowances for safety critical infrastructure should be equally applied to highway infrastructure and airfield/runway infrastructure. Choosing to under-model the flood impact by selecting a shorter (40-year) design life for runways should not be judged to be acceptable.
3. The River Mole has been the source of extensive flooding to residential areas between Gatwick and entering the River Thames at Hampton Court. GAL's proposal gives insufficient detail on the potential flooding effects of the project on those residential areas, including the effects of climate change.

### 9.2 Water Supply

#### 9.2.1 Impact on Water Extraction - Lack of Water Supply Assessment

4. No water supply assessment, such as from SESW, has been provided as part of the Environmental Statement (APP-036, Chapter 11). However, the need to increase water supply reflected by the expansion in passenger numbers and resultant increase in demand for water will have an impact in an area that is already water stressed, with much of the surrounding area vulnerable to increased levels of water abstraction, which is constraining housing in the wider area around the airport (see below).
5. Therefore, the water supply section of the DCO application does not clearly evidence (from SESW, or others) how increases in water demand resulting from the expansion of Gatwick will impact on upstream supply infrastructure and overall water resources managed by SESW and others. APP-036 (pages 11-18) references the 'Gatwick Sub-region Water Cycle Study (SESW, 2020) as stating there was sufficient capacity at treatment works but it is unclear if this related to the water supply for this project, as it does not appear to even acknowledge, let alone assess the impacts on wider regional deficiencies and looming deficits in water supply as managed by SESW and outlined in their water management plan. SESW has not clearly evidenced this claim. A full impact assessment by SESW (and/or Southern Water) of the impacts of the Project on water supply across their networks has not been provided by the applicant. This is crucial as the SE region is facing serious water deficits in the near future.
6. Particular concern is the proximity of the development to and its potential impact of increasing water demand on the Sussex North Water Resource zone, with impact of

water abstraction in this zone on wildlife sites in Arun Valley. Crawley Borough Council notes that, “New development must not add to this negative impact. This means that development in Crawley, where it is located within the Sussex North Water Supply Zone, will have to demonstrate that it will not increase pressure on water resources. This can be achieved by making development “water neutral”, where for every new development, total water use in the region after the development must be equal to or less than the total water-use in the region before the new development.”<sup>97</sup>

## 9.2.2 Gatwick’s water supply in context of increasing water stress in South East England

7. GACC is concerned that increased demand for water from Gatwick Airport would increase the cumulative demand alongside that envisaged to meet all local plans in the surrounding areas, whilst such overall demand is required to fall in line with the Southern and South-East Water strategies for what is a very water stressed region. GACC request clarification as to whether Gatwick Airport’s water supply is currently from groundwater in Horsham district, where it draws its water from, and whether this is from a temporary or permanent extraction license.

8. Horsham and Crawley Borough Councils have been notified by Natural England that developments within the Sussex North water supply area must not add to impacts on protected nature conservation sites, and must ensure that they are ‘water neutral’.<sup>98</sup> Horsham Local Plan (Strategic Policy 9: Water Neutrality)<sup>99</sup> notes that (in 5.33), “To ensure that water supplies can be maintained and the environment protected, the affected local authorities have ... produce[d] a Water Neutrality Strategy [that] outlines why and how all new development must be highly water efficient to contribute to achieving water neutrality.

9. The Sussex North Water Neutrality Study: Part C – Mitigation Strategy (2022)<sup>100</sup> refers to Natural England (NE)’s significant concerns regarding the current (and any increase in) abstraction saying it cannot conclude with certainty this is not having an adverse impact through reduced water supply and deterioration of habitats including Amberley Wild Brooks Site of Special Scientific Interest (SSSI), Pulborough Brooks SSSI and Arun Valley Special Protection Area (SPA), Arun Valley Special Area of Conservation (SAC) and Arun Valley Ramsar site. This includes abstraction from a groundwater source near Pulborough. Similarly, over-abstraction jeopardises the rare ecosystems such as ghyll woodlands in the Weald.<sup>101</sup>

10. Natural England has advised the Local Planning Authorities (LPAs) that development in the Sussex North WRZ region (Horsham, parts of Crawley and Chichester) must not add to this potential adverse effect, stating that, “**For every new development, total**

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<sup>97</sup><https://crawley.gov.uk/planning/planning-applications/you-apply/water-neutrality-crawley>

<sup>98</sup><https://crawley.gov.uk/planning/planningapplications/water-resources-crawley>

<sup>99</sup><https://horsham.moderngov.co.uk/documents/s25862/Appendix%201%20-%20Horsham%20District%20Local%20Plan%20Regulation%2019%20Dec%202023.pdf>

<sup>100</sup><https://crawley.gov.uk/sites/default/files/2022-11/Water%20neutrality%20assessment%20part%20c.pdf>

<sup>101</sup>

**water use in the region after the development must be equal to or less than the total water-use in the region before the new development.”**

11. Similarly, Wealden local plan (6.1.84)<sup>102</sup> notes that, “Applicants should have regard to South East Water’s Water Resource Management Plan (2020-2080) ... in the design and construction of a development”. South East Water’s Water Resources Management Plan 2020-2080<sup>103</sup> (p16) similarly notes that. “As a result of our review of the supply forecast and the adjustments to ensure our water supply is sourced sustainably, the amount of water available for use reduces over the planning period.”

12. The Sussex North Water Neutrality Study states that this means first reducing demand for water from new development, and then offsetting remaining demand within the region. The Strategy recommends a water efficiency target of 85 litres per person per day is adopted for all new build housing in the Water Resource Zone. Non-household development should achieve a score of three credits within the water (Wat 01 Water Consumption) issue category for the BREEAM New Construction Standard, achieving 40% reduction compared to baseline standards.

13. GACC contend that if Gatwick draw some or all of its water supply from within the Water Resource Zone Gatwick should commit to comply with the strategy’s targets.

14. GACC is also concerned that the climate impact on water supply is not sufficiently reflected in the project’s design and constraints. Climate change is already increasing the potential for saline water to be drawn in from the sea, making groundwater more brackish, as well as making periods of reduced rainfall (as well as extreme rainfall events, see below) more likely. Failure to meet demand onshore, leading to desalination plants as an indirect result of Gatwick on overall demand, would have massive carbon impact. GACC request that South East Water and Southern Water give evidence regarding the scale of constraint on water abstraction going forward.

### **9.2.3 Delivery of baseline water efficiency improvements**

15. APP-151, Annex 4 (page 26) notes that consumption is forecast to increase to 749 mega litres per year by 2028. APP-151 also notes that the water usage at the airport was 676 Mega litres in 2015, which equates to 17 litres per passenger. This notes that this is, “Subject to asset changes detailed in this report”. Please can GAL confirm a) what the current water use per passenger is; and what commitments have been made for what infrastructure to reduce water consumption down to the baseline for the project, which is noted in App-151 (page 2) as 12 litres per passenger.

16. Horsham District Council (Relevant Representation) considers it imperative that the Applicant maximizes the scope for water efficiency savings. However this is not evidenced sufficiently in the DCO application. Crawley Borough Council (Relevant Representation) similarly highlight the lack of water use targets which means the development would not comply with the local plan (policy ENV9) which seeks to mitigate the impact of the development in this area of recognized ‘water stress’. They note that

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<sup>102</sup><https://council.wealden.gov.uk/documents/b50009006/Agenda%20supplement%20Appendix%201%20Draft%20Local%20Plan%20and%20addenda%2008th-Feb-2024%2010.00%20Full%20Council.pdf?T=9>

<sup>103</sup> [REDACTED]

positive measures to reduce water use are listed but without any commitment that sufficient measures are delivered such that water supply impacts are mitigated, or indeed that such delivery will be conditioned.

#### 9.2.4 Forecast increases in water demand

17. The forecast additional water demand in APP-151, Annex 3 appears only for the small extensions to the North and South terminal, pier 7 stand and additional hotel facilities included in the application and shows no increase in demand from 2035, even though passenger levels will increase further beyond this date. Please can GAL explain the validity of this assessment given that the project's increase in terminal and associated capacity is inadequate to meet the need for the future forecast additional passenger, which means the water supply assessment that accompanies this DCO application is also inadequate. Ignoring the additional water supply associated with additional terminal and passenger capacity at a later date, to meet the project's forecast increase in demand is not acceptable. Furthermore, GAL should explain how this forecast increase in demand relates to the overall predicted best and worst-case estimates for future water consumption noted below.

18. In contrast APP-151 (page 8) set out best and worse case water consumption for 2047 as 1198 Mega litres and 1397 Mega litres. These are significantly higher levels of water consumption associated with the project. APP-036 (11.6.144) notes that this increase in demand "will be considered by SESW in water resource plans to ensure water demand is met." Similarly, APP-036 (11.9.161) notes that for 2047, "Calculations have been undertaken to determine the extent of the increase and, through discussions with GAL and SESW, the magnitude of impact on the upstream water infrastructure" and that, "SESW has stated that their sources and network can meet the additional demands of the Project."

#### 9.2.5 Climate and Cumulative Impacts on Water Supply

19. GAL state that, "Climate change impact on available water sources due to changes in annual rainfall which affect impounding reservoir catchment areas, or groundwater available for abstraction ... is not currently deemed to be significant, **but would be reviewed as the Project develops** (APP-036, 11.10.02). GACC respectfully disagree. The impact assessment, including the impact of future climatic changes, should inform planning consent, not be reviewed at some point later. GACC considers that the statement, "The potential effect of climate change is unlikely to change the outcome of this assessment" is completely unsubstantiated. It is incorrect to say that climate change would have a 'potential' effect – it will definitely have an effect. This amounts to a statement of climate change denial. This shows an inadequate understanding, or even refusal, to accept there will be impacts from climate change. For example, Surrey County Council is now planning climate change mitigation as it accepts that some climate change impacts are now unavoidable.<sup>104</sup>

20. Furthermore, as this impact assessment does not appear to have been completed the impact of cumulative water supply constraints appears absent from the cumulative

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<sup>104</sup><https://www.surreycc.gov.uk/community/climate-change/what-are-we-doing/adaptation-and-resilience/adaptation-strategy>

assessment of impacts (APP-036, Section 11.11). Again, GACC considers this failure to properly assess the cumulative impact of water supply unacceptable.

## 9.2.6 Conclusion

21. GACC request that the evidence supporting SESW's assertion that they can meet the additional demands for the project should be shared for public examination and the proposed assessment of impact by SESW should be completed now so that it can inform this examination, and include both cumulative impact of other developments in the same water supply area, and the impacts of climate change. A water supply assessment, such as from SESW should be required to be provided, and presented on in an Open Hearing, as a matter of urgency such that it can inform the examination.

## 9.3 Wastewater Management

### 9.3.1 Sufficiency of Wastewater Treatment Capacity - Lack of Wastewater Management Assessment

22. The DCO application does not include a wastewater management assessment, such as from Thames Water. Thames Water has noted that they *will* undertake assessment of impact of increased passenger numbers on Crawley and Horley STWs. For example, Horsham District Council (Relevant Representation) have raised concerns about the capacity of the Crawley WTW alongside emerging local plan growth around Crawley, including the land West of Ifield, and synergy required for flood mitigation measures across these major sites. Similarly, impact on Horley STW should be considered in light of long-term housing growth planned around West Vale (North Horley) as well as that in the catchment area in the Mole Valley local plan. However, no wastewater management assessment appears to have been completed yet and has been omitted from the application documents. The Horley STW already cannot cope with current demands and regularly releases sewage onto the adjacent footpath on the banks of the River Mole.

23. As a result the impact of the development on water treatment facilities in the vicinity to the airport of a) the current 'baseline' level of expansion of flights proposed on the current operational runway and b) the additional impact associated with the proposed development, appears completely omitted.

24. This assessment should be required to ensure that the continued baseline expansion *and* the proposed Northern Runway expansion in passenger numbers and resultant increase in waste water flows to treatment plants at Horley and Crawley, both red flagged as challenging to upgrade, can be accommodated without impacting water quality downstream through increased frequency and/or severity of storm overflows or other pollution incidents.

25. In addition, the existing *treatment* of surface water from car parks is currently not sufficient (as reported in CIRIA test results). While the drainage design for new car parks appears likely to sufficient to treat runoff GAL should confirm that this same level of improvement will be undertaken for all current and already permitted expansion to car parking, regardless of whether or not the project goes ahead.

26. Masson, 2023 (Upper Mole Catchment Level 1 Strategic Flood Assessment, 8.8.2) notes that developers should discuss public sewerage capacity with Thames Water at the earliest possible stage and that a drainage impact assessment must demonstrate that this will not increase flood risk elsewhere, and that the drainage requirements regarding runoff rates and Sustainable Drainage Systems (SuDS) for new development are met. It would appear that the local authority, Crawley Borough Council also expect this impact assessment to be completed before, not after the DCO is examined.

27. In some cases, improvements to supporting infrastructure, such as transport and water infrastructure, are conditioned and implemented following planning approval. However, this is a Nationally Significant Infrastructure Project. Just as its surface transport impacts are assessed in advance and included in the scheme design, the Project's water supply and wastewater requirements should be assessed in advance and reflected in the scheme design. In this way the full impact of the Project should be able to be examined publicly through this examination, and not be permitted to be glossed over, and emerge later.

28. The National Policy Statement for Waste Water (6.2.2) states that, "*Where the project is likely to have adverse effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on water quality, water resources and physical characteristics of the water environment as part of the Environmental Statement (ES) or equivalent.*" No such assessment has been completed by GAL even though this application would seem to have an impact on a) the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates and proposed changes to abstraction rates (including any impact on or use of mains supplies and reference to Catchment Abstraction Management Strategies); and b) existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project and any impact of physical modifications to these characteristics such as any proposed changes to the discharge rates of effluent discharges and point(s) of discharge, with regard to the waste water impact.

29. A wastewater impact assessment, such as from Thames Water, on the operation of Horley and Crawley STWs should be required to be provided, and presented on in an Open Hearing, as a matter of urgency such that it can inform the examination.

### 9.3.2 Wastewater Modelling

30. The wastewater modeling by GAL is set out in APP-150 and is described as a "simplified model" as the "network is complex". The North Terminal wastewater flows to Horley Sewage Treatment Works (STW) whilst wastewater from the South Terminal flows to Crawley STW. The modeling has assumed discharge levels for passengers (departing and arrivals) and for staff and shows that Gatwick Airport's wastewater sewer system has additional capacity to accommodate increased flows from both passengers and surface water runoff. This is noted (APP-036, 11.4.24) as having been updated with 2018 'busy day' passenger numbers and future baseline.

31. APP-150, Table 8.2.1 suggests that busy day in terms of passenger numbers would increase from a baseline figure of 178,262 in 2029 to 236,056 in 2047 with the project.

GACC request that GAL provide the busy passenger days considered for the 2018 case in the model.

32. However, it is not clear what the modeling assumptions are, and how the model was validated against actual monitoring data. Thames Water (Relevant Representation) have requested that they are provided with the Applicant's modelled foul water flows as they need to understand the changes that are envisaged as result of the development. Thames Water also note that GAL should comply with Defra's "National Standards for Sustainable Drainage Systems" and should notify Thames Water of any proposed increase in surface water runoff (presumably both directly and via the foul sewer network). GACC politely request that GAL or Thames Water make these details of wastewater and surface water flows publicly available so all those wanting to examine fully the DCO application can also see the exact impact the development will have on wastewater flows and surface water flows.

33. Thames Water note the time that it will take for the planning and delivery of wastewater system improvements and note that this will be "3-5 years from when the information is supplied" and request that, "a requirement on the outcome of the DCO be that no additional foul water flows from the development can be discharged until the modelled flows are agreed and the network upgrades are implemented." TW are being called on from multiple other sources to sort out the current lack of capacity in the sewage system, and are already finding it difficult to source construction capacity. Why should GAL be allowed to expand and put even more pressure on the sewage system, when works are already queued up by Thames Water to protect the natural environment and people's houses from current sewage problems?

34. GACC note that GAL are proposing to significantly increase flows in any case, even without the proposed use of the New Northern Runway, so it is crucial that this constraint is placed on the existing (current) baseline flows, not on the future (project) baseline flows.

35. The modeling results in proposed new pumping stations and new mains sewers, which it is stated, would reduce the climate impact (such as incidence of STP overflow). However, it is also stated that the upgrading/new pumping stations and sewer main will ensure no additional discharge to the Mole. Yet, it is unclear to what extent this would increase discharges from the STWs, which themselves have had more frequent overflow events in recent years, presumably in part due to the level of wastewater flows (including surface water) from Gatwick Airport. So, to what extent does increased discharge from the airport together with no discharges of untreated sewage to the River Mole require increased STW capacity?

36. APP-150, 6.1.2 further noted that rainfall during the flow survey period has been calculated and peak observed storm flows derived for a 25% Annual Exceedance Probability (AEP) event and the flows extrapolated to a 3.33% AEP event using the hydrological characteristics of the Gatwick area - as the maximum magnitude of storm that a sewer system can reasonably be expected to cope with without flooding.

37. GACC request confirmation of what uplift for climate change was modelled for the 3.33% AEP event.



38. APP-150, 6.1.3 notes that the peak inflow representing the rainfall runoff was modelled as a constant flow over 24 hours.

39. GACC request that validation/verification data be shared for the most severe recent flood events to demonstrate the impact of this assumption against actual observed rainfall runoff rates in storm events.

40. GAL (APP-150, 7.1.3) showed that the model run using the May/June 2019 storm flows indicated that the system was stressed at PS7 and PS3 where “total inflows exceeded pumping capacity, but no flooding is predicted.” GACC request an explanation as to how this does not lead to flooding and what would happen if a more severe storm event were to be modelled, including the required climate uplift.

### 9.3.3 Extent of surface water in wastewater system

41. Whilst the sewer network is nominally wastewater only, it is noted that parts of Gatwick Airport’s estate discharge storm flows into the sewer network. For example, surface water flow into the foul system is noted as being included in flows to Crawley STW from ‘North Gate’ in APP-150, Figure 2.2.1. This appears to be 6 litres/second capacity (PS6 in Table 2.2.1). APP-150, 6.1.2 notes that, “in most areas the network received rainfall runoff” so “an allowance was required within the model to account for this.” This means that additional storm water is conveyed to treatment works and may contribute to storm overflows and river pollution downstream. While GAL notes that its attenuation and mitigation works are designed to divert storm flows out of wastewater system and reduce pressure on wastewater management and processing the extent to which this is done is not clearly quantified in APP-150 and the wastewater modeling as presented.

42. Masson, 2023 (Upper Mole Catchment Level 1 Strategic Flood Assessment, 8.8.2) states that for redevelopment of brownfield sites (as is the case for this DCO) surface water should be directed to natural outfall routes such as infiltration to the ground or into watercourses, before utilising sewers (surface water or combined), as supported by paragraph 80 of the NPPG. **Surface water should also not be permitted to connect to a foul sewer.** It is not clear that this requirement of Crawley Borough Council has been met for the existing airport estate or for the proposed development GACC request that this should be addressed now, and the expansion planned based on continued full compliance in this regard.

43. Thames Water (Relevant Representation) note that they require an integrated water and drainage strategy setting out clearly how the Applicant intends to deal with all water and wastewater generated on the site. GACC requests that this addresses the issues raised in the above paragraph and ensures that the application does not increase flooding ‘inadvertently’ through the continued flow of surface water through the foul sewers into the two Thames Water STWs and the mix of surface water and wastewater flows from the Airport fully comply with the government’s 1:100 flood return period including appropriate climate change allowances (as discussed further below).

### 9.3.4 Diversion of surface water away from wastewater system

44. Can GAL please confirm why it appears not to have instigated a separation of foul

water and surface water drainage as part of the Project.

### 9.3.5 Impact of Wastewater on Horley and Crawley STWs

45. GAL notes (APP-150, 8.1.5-8.1.6) that, “The capacity of the public sewer network to which the private Gatwick wastewater system discharges and the downstream STW is the responsibility of Thames Water under the terms of its license as the statutory authority. Discussions with Thames Water are ongoing to agree the quantity and distribution of discharges from the airport in the future. The local sewerage undertaker: TW, as part of their long-term planning, will undertake an assessment of the impact of wider projected growth in the local area on their sewage treatment works at Horley and Crawley, which would include the impact of the Project. If capacity issues are identified, Thames Water would be responsible for reinforcing their network to support development and they would recoup their costs through infrastructure charges to Gatwick.”

46. GAL notes (APP-036, 11.4.10) that, “Thames Water will undertake an impact assessment of the project on the downstream public sewerage conveyance and treatment system.” It is unclear from this statement whether this is already underway (such that it can at some point inform the DCO examination). Thames Water need to ensure that it is indeed possible for the Horley and Crawley STWs to be capable of processing the additional flows from Gatwick as well as the significant growth in housing and population proposed across the Upper Mole catchment e.g. West of Ifield (10,000 home development).

47. GAL propose that mitigations will be secured as a requirement in Schedule 2 of the DCO (APP-150, 6.1.4) rather than have this data up front to inform understanding of the impacts of what GAL have proposed, not least the scale of surface water impact on foul water systems during extreme flood events.

48. GAL note that a study in 2018 showed dry weather capacity is OK but wet weather capacity stressed the system and caused a risk of sewer flooding in extreme storm events, plus it identified constraints in the network to Horley STW. Indeed GAL notes (APP-036, 11.6.81) that there is already a medium risk of sewer flooding at Gatwick Airport because the Thames Water network at Horley “periodically reaches its capacity, causing flows to back up to the airport.” This is understood to be a relatively frequent event, and was observed during the model verification in June 2019. It was not considered a risk because other assets (presumably the Horley STW itself) will flood first.

49. GACC request that GAL separate and publish the foul and surface water flows calculated by the wastewater model for a) current situation (2018), b) future baseline and c) future project (e.g. 2047). For each please confirm the overall discharges to a) Horley and b) Crawley Sewage Treatment Works for both dry and wet days. How does the model predict the level of flow to each STW for a 1:33 and 1:100 year storm event?

### 9.3.6 Impact of wastewater on overall flood risk

50. Crawley Borough Council’s Strategic Flood Assessment report (Masson, 2023, page 64) notes that the return period chosen for sewers is based on that in Sewers for Adoption guidelines (1980) with a 1:30 design life “which means that, even where

sewers are built to current specifications, they can still be overwhelmed by larger events of the magnitude often considered when looking at river or surface water flooding (e.g. a 1 in 100 chance of occurring in any given year 1% AEP).

51. Please can GAL confirm what is expected to happen to the wastewater system flows when events larger than the wastewater system's 1:30 design life occur, as was last the case at Gatwick Airport in 2013/14 when the River Mole Catchment experienced 1:60-1:90 year return period flood event.<sup>105</sup> The fact that this scale of flood event has occurred in the last decade in the airport vicinity highlights that climate uplift in flood risk may already be seen locally.

52. The NPS for Waste Water (6.2.2) states that, "This should identify and assess the risks of **all** [emphasis added] forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account. Similarly, the National Planning Policy Framework requires that any development shall not increase flood risk beyond the boundaries of a development site for rainfall events not exceeding the severity of the 1 % annual exceedance probability (AEP), which is also referred to as a 1in 100 year return period. This does not seem to provide an exception in that a Flood Risk Assessment does not include indirect flooding of foul water via an overflowing sewage treatment plant.

53. In addition, Crawley Borough Council (Masson, 2023, 8.2.2) notes that the aim of a Flood Risk Assessment is to demonstrate that the development is protected to the 1% AEP fluvial flood scenario and is safe for its intended life span during the 'design' flood event, including an allowance for climate change.

54. It is therefore not clear how the increased surface water flow that is modelled alongside increased sewage flow through the foul sewer system from Gatwick Airport to Horley STW and Crawley STW has been considered within the Flood Risk Assessment for the development, and therefore whether this meets local and/or national requirements to not exceed the 1% AEP fluvial flood scenario.

## 9.4 Flood Risk Assessment

### 9.4.1 Flood Model

55. The Environment Agency (EA) have refused to comment in detail on the proposed flood mitigation features until the applicant has shared the relevant data to enable them to carry out a detailed review of the Applicant's flood risk model, and until that time have stated that they are unable to comment on the flood risk conclusions. The EA request that GAL, "demonstrate the risk to flooding from all sources can be managed throughout any construction phases and post-development without increasing, and ideally reducing, the risk to flooding on and off-site." The EA note differences in the flood extents shown by the Environment Agency's Flood Map for Planning and that these should still be considered by the applicant for resilience planning and future proofing of the proposed development.

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<sup>105</sup>[https://www.surreycc.gov.uk/\\_data/assets/pdf\\_file/0005/71924/6-Mole-Valley-District-S19-Report.pdf](https://www.surreycc.gov.uk/_data/assets/pdf_file/0005/71924/6-Mole-Valley-District-S19-Report.pdf), page 13

56. The earlier GAL consultation (summer 2022) noted that flood modelling has been updated to reflect the Environmental Agency (EA)'s reduction in its allowance for the 1 in 100 Annual Exceedance Probability event from 35% to 20%, reducing the amount of flood compensation required. The 2022 consultation document (paragraph 3.6.2) stated that, "This modelling has demonstrated that some of the proposed flood compensation areas can be reduced in size, and two can be removed entirely, with no increase in off-site flood risk." This appears to be incorrect – it would appear that the risk of flooding has been increased by GAL, but they consider this to be acceptable as a 'minimum requirement' according to the EA guidance. We request that this is now clarified by both GAL and EA as it would appear that the flood allowances have been weakened and/or flood risk increased since the earlier consultation.

57. In addition, National Highways have noted that the River Mole fluvial model has been carried out using the 'undefended' scenario and requires details on the model calibration to be provided, justification for the reduction of storage volume at Pond F and why no blockage assessments/sensitivity have been carried out as part of the flood risk assessment. The risk due to blockages is also highlighted as a concern by CBC (Relevant Representation) and MVDC (Relevant Representation).

58. GACC would request that this information is shared publicly as part of the DCO examination process so the assumptions, verification, validation, together with the full set of model inputs and outputs, including sensitivity analysis work completed can be assessed by other parties who have submitted relevant representations.

#### 9.4.2 Choice of climate change allowances and return periods for flood assessment

59. The EIA (APP-036, Table 11.2.2) references clause 4.47 of the ANPS (2018):<sup>106</sup> which states, "Where transport infrastructure has safety-critical elements, and the design life of the asset is 60 years or greater, the applicant should apply the latest available UK Climate Projections, considering at least a scenario that reflects a high level of greenhouse gas emissions at the 10%, 50% and 90% probability levels.

60. While the existing and northern runways would be considered as safety-critical infrastructure, the design life of the Project as a whole has been assumed to be 40 years having had consideration for the past history of development of airport and roads infrastructure at Gatwick. The proposed road junction improvements have been assessed separately (but in the context of the wider airport development having occurred) assuming a 100-year lifetime."

61. ANPS (2018) clause 4.47 therefore sets out the need for safety critical transport elements with a design life of 60+ years should apply the latest climate projections. A 60-year appraisal period is also a requirement of the DfT Transport Analysis Guidance. GAL has proposed that its airfield, including the new Northern Runway, is not treated in this way but has a 40-year design life. It is not clear why an airfield, which is drained to

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<sup>106</sup>Airports National Policy Statement (2018).

4.47 Where transport infrastructure has safety-critical elements, and the design life of the asset is 60 years or greater, the applicant should apply the latest available UK Climate Projections, considering at least a scenario that reflects a high level of greenhouse gas emissions at the 10%, 50% and 90% probability levels, to assess the impacts of climate change over the lifetime of the development.  
<https://assets.publishing.service.gov.uk/media/5e2054fc40f0b65dbed71467/airports-nps-new-runway-capacity-and-infrastructure-at-airports-in-the-south-east-of-england-web-version.pdf>

remain operational due to its function as a piece of critical infrastructure, should be considered to have a shorter design life than residential properties, for which it could increase the risk of flooding, both now and in the future.

62. As documented (APP-146, paragraph 3.7.6), the Project incorporates two design lives: 40 years for the airfield and 100 for the highways surface access elements. However, it is not clear what rationale GAL has provided (it was not clear) for the airfield design life to be chosen as 40 years, while national guidance suggests the lifetime of a development such as this would normally be for a period of at least 75 years.<sup>107</sup> It would appear that if the national guidance on design life had been followed then the same climate change uplift would have been applied to all of the DCO project's elements. The Environment Agency (Relevant Representation) also question why the surface access works have been given an adopted lifetime of 100 years whilst the airfield and associated works an adopted lifetime of 40 years. Similarly, WSCC (Relevant Representation) note that according to the Environment Agency guidance (Flood risk assessment: climate change allowances, 2022) the drainage scheme should have been designed for the 1% AEP event plus a 40% allowance for climate change if the lifetime of the development is 2100 or beyond. GACC request that GAL provide a clear statement as to why they do not feel this applies to this major scheme and why they believe choosing the short design life is justified in this particular case.

63. As a result the climate change allowances adopted vary between the drainage designs for these elements. In accordance with the updated Environment Agency (2016a), Flood Risk Assessments: Climate Change Allowances guidance the highways drainage strategy adopts the Upper End allowance of +40%. GAL has not clearly set out why they believe it is acceptable for the airfield drainage to instead use the Central allowance of +25%, with only a sensitivity test on the impact of +40% climate change allowance.

64. The Environment Agency (Relevant Representation) state that the applicant must consider the credible maximum scenario as a sensitivity test for future scenarios – which would be the Upper End climate change figure of a 40% increase in peak river flows. The EA continue to state that, “As the proposed works would take place over a period with the various project elements having suggested development design lives ranging from 40 to 100 years, this would span different epochs of predicted climatic change. Therefore, there is a need to consider a range of increases in peak river flow as part of the Flood Risk Assessment.”

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<sup>107</sup><https://www.gov.uk/guidance/flood-risk-and-coastal-change>.

What is considered to be the lifetime of development when applying policies on flood risk and coastal change?

Residential development can be assumed to have a lifetime of at least 100 years, unless there is specific justification for considering a different period. For example, the time in which flood risk or coastal change is anticipated to affect it, where a development is controlled by a time-limited planning condition. The lifetime of a non-residential development depends on the characteristics of that development but a period of at least 75 years is likely to form a starting point for assessment. Where development has an anticipated lifetime significantly beyond 100 years such as some major infrastructure projects, or where it would create significant land-use change such as a new settlement or substantial urban extension, it may be appropriate to consider a longer period for the lifetime of development when assessing the potential impacts of climate change on flood risk or coastal change and considering the future prospects for flood and coastal erosion risk management infrastructure. It may also be a consideration when identifying existing development that may not be sustainable in the long term, and seeking opportunities for relocation. These approaches could be particularly justified where long-term risks relate to sea level rise. Paragraph: 006 Reference ID: 7-006-20220825, Revision date: 25 08 2022.

65. GAL was previously criticized for inadequate flood risk modelling for its proposed second runway by the Airport Commission's consultants (Jacobs, 2014 – see appended reference). At that time it proposed a 25-year design life (to 2050) for the flood risk modelling, in contrast to the 60 years considered by Heathrow (to 2085). We do not believe the increase from 25 to 40 years in this DCO application adequately addresses this. In contrast, the Manston Airport DCO (see appended reference, clause 7.16) recently proposed a 100-year design life for its runway.

66. Therefore, GAL should explain why a similar consideration for maximum climate change uplift has not been applied as was the case for Manston's DCO - by designating the design life of its airfield as 100 years.

67. GAL (APP-036, Table 11.2.2) does however note that they have undertaken sensitivity analysis for the credible maximum climate change scenario for peak river flow (in accordance with government guidance<sup>108</sup>) (APP-036, paragraph 11.6.134). However, it is unclear if the design is carried out for this, or for the lower climate change allowances, based on the choice of 40-year design life. GACC consider that the scheme should be designed for the 40% climate uplift and the sensitivity analysis applied to this. That would mean that the 40% climate uplift should be treated as the baseline, rather only featuring as part of the sensitivity analysis as a 'credible maximum scenario'.

68. As it is in Flood Zone 3 the Flood Risk Assessment Exception Test allows development on the flood plain as an exception for essential infrastructure at Gatwick. If a design lifetime of 100 years is taken then the recommended allowance is an upper end allowance for the 2070s epoch, which would require a 40% uplift (Masson, 2023, Table 4.5).<sup>109</sup>

69. APP-036, 11.6.103 recognises that the main source of future flood risk and surface water flooding is from climate change. However, only a 16% allowance on peak river flows has been applied to consider this impact on fluvial flood risk on the airfield.

70. GAL are requested to review whether this fluvial 1% AEP level and climate change allowance of 16% is sufficient, particularly in light of the magnitude of the 2013 flood event and the fact that higher climate change allowances are required for the 2050s epoch and longer design life assets.

### 9.4.3 Consideration of Future Baseline of Flooding

71. In the Airports Commission baseline Report (Jacobs, 2014) assessed how flood risk may change over the period 2025 through to 2085 in the absence of a major development, due to both climate change and existing potential development pressures. It concluded that for Gatwick peak river flows would increase by 10% up to 2025 and by 25% up to 2085 and rainfall by 5% and 20% respectively. GAL should confirm whether these figures are incorporated in the modelling of proposed mitigation measures.

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<sup>108</sup><https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

<sup>109</sup>Anthony Masson, Crawley Borough Council (December 2023) Crawley Borough and Upper Mole Catchment Level 1 Strategic Flood Risk Assessment Final Report.  
[https://www.horsham.gov.uk/data/assets/pdf\\_file/0006/131784/C03-Gatwick\\_Sub\\_Region\\_SFRA.pdf](https://www.horsham.gov.uk/data/assets/pdf_file/0006/131784/C03-Gatwick_Sub_Region_SFRA.pdf)

#### 9.4.4 Extent of flood prevention works

72. Gatwick Airport is located within the floodplain of the river Mole at the site of a historic hamlet called Lowfield, whose name itself highlights its flood risk. Historically, Gatwick Airport's site would have operated as a flood plain, reducing downstream flooding. This is demonstrated by the large amounts of flood zones 2 and 3 across the airport site. Indeed the EA (Relevant Representation) highlighted that fluvial flood risk would be increased by the Project due to further floodplain losses and displacement of floodwaters. In the past it is this location that would tend to flood, reducing flooding downstream. The need for flood storage in this location, as the confluence of streams that become the River Mole downstream, is increasing with the impact of climate change into the future. Therefore, this increased baseline flooding should be addressed by Gatwick because it is Gatwick's development which is increasing baseline flood risk. In light of this GACC, request (supporting the request made by WSCC, Relevant Representation) that GAL provide the 'greenfield' run-off rates and volumes for the 1% AEP event plus climate change so it is possible to see the extent to which this is evidenced for the development.

73. Mitigation measures proposed as part of this DCO do not appear to include the far wider mitigation needed to reduce downstream flooding along the River Mole to pre-Gatwick Airport (i.e. greenfield) levels, where there was not just greenfield but flood storage in the Gatwick area. For example, Ifield Village Conservation Area Advisory Committee (Relevant Representation) noted that although some parts of the Upper Mole Valley Flood Prevention Scheme have been completed the previously proposed flood retention in the Ifield area was not, due to lack of finance. As a consequence, the resilience against downstream flooding is not currently as high as originally envisaged. This should now be considered as Gatwick Airport proposes to expand, rather than just focusing on flood mitigation measures directly around the airport itself. GACC request that GAL be required to fulfill its existing obligations now, before any expansion is even considered.

74. Gatwick, as a major infrastructure location, must not simply seek to comply with the minimum. It is unacceptable for the airport to be allowed to dump water (together with any chemicals it contains) into the River Mole at extreme weather events as this could mean that housing downstream is being allowed to flood in preference to an airport. Gatwick Airport should not take precedence over housing in terms of which areas flood in extreme events. This is covered further in Section 6.

#### 9.4.5 Risk of Unforeseen Synchronisation of flood peaks downstream of attenuation

75. Observed flows during flood peaks 2022-2024 of the Gatwick Stream and Upper River Mole show unusual and varied behaviour. There are considerable differences in lag time between these stations such that on some occasions Horley, which is downstream of the gauge at Gatwick, reaches peak discharge before the Gatwick gauge. This is the reverse of expected behaviour as downstream gauges should peak after those upstream.

76. Gatwick Stream was observed to peak more quickly than the Upper River Mole during peak flood conditions. For example, during the significant rainfall on 04 January 2024 (33.6mm in 7 hours measured at Burstow Environment Agency gauge) the Gatwick

Stream peaked in 5 hours while the River Mole peaked in 10 hours. Downstream at Horley the river peaked at 9 hours, which is extraordinary behaviour for a gauge downstream to peak before those upstream.

77. This shows extremely unusual behaviour. The river at Horley was observed to be peaking an hour before the river at Gatwick. This may indicate that the Gatwick Stream is the dominant contributor during significant flood peaks and may also suggest that the realigned section of the River Mole, at a lower gradient, is somewhat ponded-back as the Gatwick Stream peak comes through. A notably long duration of peak discharge is frequently observed during peak flows at Gatwick Gauge, showing the realigned section of the River Mole appears to retain considerable volumes of flow while the Gatwick Stream peak has long since passed through Horley. The charts (see references at end) show this in action.

78. The significance of this unusual behaviour is that further attenuation of the Upper Mole may have unintended consequences for the behaviour of flooding downstream. The particular behaviour means that synchronization of flood peaks may be possible which would increase downstream flooding. Modelling should show that this scenario is considered and tested for.

79. This highlights grave uncertainties about adding attenuation upstream of the realigned section which may have unintended consequences regarding sustained peak flows and cause synchronisation of peaks downstream thus increasing flooding downstream. GACC requests that this risk is properly considered, and modelled by GAL to inform examination of this DCO to ensure that such an unintended consequence of the project does not happen.

#### **9.4.6 Impact of airport operations (including emergency discharge) on flood risk elsewhere**

80. We note that flooding around the airport has previously occurred (anecdotal evidence) when the Airport releases surface water into the River Mole (directly, as well as indirectly through increased flow as part of wastewater). This is understood to be within the allowance that GAL has for emergency discharge in the case of extreme flood events.

81. GACC request that GAL share data on the incidences and volumes of such deliberate discharges made to the River Mole over the last fifteen years, such that it can be assessed a) as to the level of impacts this has on the surrounding areas and b) whether this is reasonable level of discharge in future. In addition, the volume of wastewater flows at these times from the Airport to Horley and Crawley STWs is requested.

#### **9.4.7 Implementation of Recommendations from McMillan Report and Review of modelling against empirical results from December 2013 flood event.**

82. GAL should also clearly set out how its submission addresses the findings of the McMillan Report (2014) which independently reviewed the factors behind the extreme flooding event of December 2013 that flooded the North Terminal and disrupted the operation of the airport, as noted in Reference 1 below. The McMillan Report concluded



that, new remedial measures and procedures should be put in place to minimise future flood risks. At that time it is reported that GAL accepted all the McMillan Report recommendations. GAL should confirm that these have now been implemented and share subsequent flood risk assessment to review their sufficiency. GAL should clearly set out where it has addressed all of the possible flood risks identified by Jacobs in 2014 (including reservoir flood risk) and that detailed mitigation is appropriate and sufficient (including surface water mitigation, in line with the full 40% climate uplift, as set out above).

83. In addition the Jacobs Report (2014 – see Reference 1) also notes that GAL (at that time) did not provide any indication of how their flood map matches the December 2013 flooding extent, which is considered to be largely from surface water flooding. A comparison with the December 2013 surface water flood event would help verify the acceptability of the Infoworks ICM model results and this should be undertaken. Again, it is not clear whether such a review underpins the flood assessment presented as part of this DCO, and if not, then why not. GACC request that GAL share details of how the empirical evidence from December 2013 has been used to validate and verify the flood risk assessment modelling.

84. GAL should provide a full record of flood discharge events in the past 15 years, including how much water was released and when, regardless of whether these discharge events were within or exceeded the permitted discharge rates. This should include presentation of a specific study on flood risk to inform the approach taken in the DCO, including learning from the flood event in 2013 to ensure that if it were to happen again then Gatwick would *reduce* as opposed to *increase* downstream flooding. The risk of flooding outside the airport boundary should not be greater than if the airport were not there.

## 9.5 Specific References regarding flood risk assessment (all are direct quotes in the references below)

### Reference 1. The Flood Risk Assessment for Airports Commission, (Jacobs, 2014)<sup>110</sup>.

This references the then proposed Gatwick Airport Second Runway (to the south of the current runway, as opposed to this scheme which proposes to turn the emergency runway to the North into a second runway). However, the references question the sufficiency of the flood risk methodology (and contrast it to Heathrow's) and the level of flooding modelled, including in comparison to the winter 2013 flood event.

(page 5):

The Jacobs assessment of the Gatwick 2R proposals concludes that the scheme involves major changes to the fluvial environment that without effective long-term mitigation could cause a significant increase in flood risk elsewhere. Of most concern are that the proposals involve:

- Development in Medium to High Risk Flood Zones that will cause loss of floodplain storage;
- Diversion of major watercourses that could lead to changes in flood risk;
- Development within an area that could be at significant risk from surface water flooding; and
- Development in an area that could be impacted should there ever be a breach in nearby reservoirs.

Fluvial flooding is the major source of flood risk to the scheme. The scheme would also increase the risk of this type of flooding to other areas. Flood mitigation measures are therefore required and have been proposed in the form of a diversion channel and flood storage. Sizing of these proposals by the promoter was based on development and application of detailed hydraulic modelling of the proposed scheme. The modelling approach adopted is considered appropriate for this stage of the project. An appropriate allowance for the effects of climate change on peak river flows and rainfall has been used.

Surface water flood risk must also be addressed. In doing so the promoter has used an appropriate computer model. However the model produced flood extents considerably smaller than that of the national Environment Agency surface water flood map. The promoter's drainage design is based on the results of this detailed local model, which is likely to be a more detailed representation of the local flood risk, but further verification of the model against the December 2013 flood event would need to be undertaken in any future planning stages.

Jacobs has undertaken a high level estimate of the volume required for attenuation of surface water. The submission adopts suitable design criteria for estimation of the attenuation requirements. However, the quoted attenuation volume is considerably lower than expected based on the preliminary calculation by Jacobs. In addition, the proposed drainage arrangement may have fundamental issues with an excessive pump capacity requirement and little resilience to the residual risks caused by pump failure or airfield runoff rates that exceed the capacity of the pumps. Further details on the assumptions made

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<sup>110</sup><https://assets.publishing.service.gov.uk/media/5a7e1d4be5274a2e8ab45eec/9-water-and-flood-risk--flood-risk-assessment.pdf>

by the promoter will be required so that the discrepancy with Jacobs' high-level estimate can be further investigated and resolved.

The Water and Flood Risk Baseline report (Jacobs, 2014) did not identify a groundwater flood risk problem at or near Gatwick and this is reflected in the promoter's submission. However, an assessment of the reservoir flood risk will be required, which is clearly identified in the Environment Agency reservoir flood risk map.

Further evaluation will be required to ensure that all the possible flood risks identified by Jacobs are fully addressed by the promoter (including reservoir flood risk) and that detailed mitigation developed by the promoter is appropriate and sufficient (including surface water mitigation).

[page 14]

The Baseline Report (Jacobs, 2014) assessed how flood risk may change over the period 2025 through to 2085 in the absence of a major development, due to both climate change and existing potential development pressures. It concluded that for Gatwick peak river flows would increase by 10% up to 2025 and by 25% up to 2085 and rainfall by 5% and 20% respectively.

[page 24]

The promoter's submission also reviews the findings of the McMillan Report (2014) which independently reviewed the factors behind the extreme flooding event of December 2013 that flooded the North Terminal and disrupted the operation of the airport. The McMillan Report concluded that, although it was clear that much had been done to prevent flooding, new remedial measures and procedures should be put in place to minimise future flood risks. It is reported in the proposal that Gatwick Airport Limited has accepted all the recommendations made by the McMillan Report, and has announced an additional investment of up to £30M in ongoing flood risk assessment and mitigation. However, the proposal clarifies that no allowance has been made for this investment in the future baseline considered by this proposal. This is a cautious and sensible approach.

[page 27]

The promoter's surface water flood risk maps show a much reduced flood extent; only the northern areas are shown at flood risk. However, there is no indication of whether their flood map matches the December 2013 flooding extent, which is considered to be largely from surface water flooding. A comparison with the December 2013 surface water flood event would help verify the acceptability of the Infoworks ICM model results and this should be undertaken.

[page 79]

Note: Defined design life for Heathrow as being to 2085/86?

Report which reference year has been used instead (and report if climate change allowances insufficient, see below)

[page 82]

Question: Report which reference year has been used instead (and report if climate change allowances insufficient, see below)

Response: No. Design life to 2050 for Gatwick.

[page 108]

Question: Climate change has been considered up to 2050. What consideration has been given to operation of the airport, and adaptation to climate change beyond this timeframe, with specific regard to increasing flood risk, particularly if climate change results in greater than the 20% increase in rainfall / river flow?

Response: No further climate change impacts assessments have been undertaken. However, the new development is protected to the 0.1% AEP plus climate change at 20%, which provides resilience for different climate change forecasts for between the 0.5% and 0.1% AEP.

Question: Are the criteria of 2-year surcharging and 10-year flooding of taxiways and other paved areas (except the runway) (paragraph 4.11.9 in Appendix A12, and sub-appendix B, Section B.2.4) acceptable from an airport operational point of view?

Response: We have used current best practice based on our designs for US and other UK airports. There is very little modelled surface water flooding for the 1 in 100yr+cc event for the new development.

Question: For the drainage design and surface water flood risk, you have assumed that the climate change scenario (2050) is to increase the rainfall intensity by 20% (refer to Section 4.5.2 on page 21). Can you confirm whether the design peak flows (for fluvial flooding) are also increased by 20% for the climate change scenario (2050).

Response: yes

**Reference 4. Manston Airport DCO Document App0428 5.2-8 Environmental Statement Volume 8: Appendices 8.2 - 9.1 Part 1 (Explanation and Tracked).**<sup>111</sup>

Manston Airport's recent DCO considered a 100-year flood return period. This is reflected in the updated for the Manston Airport DCO:

7.12 Climate change is currently predicted to increase the wetness of winters and the dryness of summers. The intensity of storm events is anticipated to increase with rises of 5% expected by 2025, 10% by 2055, 20% by 2085 and 30% by 2115. This will have an impact on the volume of rainfall that will fall at the site, with rainfall increasing from 41.7mm for the 1% AEP storm, with duration of 1 hour, to 58.3 mm for the 1% AEP storm plus 40%.

7.16 As presented, the estimated 1 in 2 year, 1 hour run-off rate for the existing development is approximately 6256.6 litres per second (l/s), whilst the 100-year, 1 hour run-off is 18538.3 l/s. The currently expected impacts of climate change based on the year 2115 (assuming an expected lifespan of the development of at least 100 years) would increase this by 40% to 25953.6 l/s for the site.

## Section 10. Noise and Night Flights

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<sup>111</sup> 5.2-8 Environmental Statement Volume 8: Appendices 8.2 - 9.1 Part 1 (Explanation and Tracked) TR020002/D1/5.2-8T (18 January 2019). [https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/TR020002/TR020002-002873-Deadline%201%20-%20APP048%205.2-8%20Environmental%20Statement%20-%20Volume%208%20\(Explanation%20and%20Tracked\).pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/TR020002/TR020002-002873-Deadline%201%20-%20APP048%205.2-8%20Environmental%20Statement%20-%20Volume%208%20(Explanation%20and%20Tracked).pdf)

## 10.1 Summary

1. GACC believes that GAL has failed to apply government aircraft noise policy properly in several key respects and that its proposals therefore require significant revision.
2. GAL's choice of the level at which significant adverse effects are experienced by people is not consistent with government policy. The 57dB LAeq 16 hour contour should be regarded as the level from which significant adverse effects occur and accordingly, in accordance with the Airports National Policy Statement (ANPS), development consent should not be granted unless effects above that level have been avoided.
3. GAL has applied the government's Lowest Observed Adverse Effects Level (LOAEL) metrics improperly. As a result, it has materially understated the effects of aircraft noise. It should be required to report and cost noise impacts using the limits strongly recommended by the World Health Organisation. In addition, the CAA should be asked to advise whether the ongoing Aircraft Noise Attitudes Survey suggests any change in attitudes to aircraft noise.
4. GAL should be required to engage properly, under independent chairmanship, to develop new noise envelope proposals. To comply with policy, if development consent was granted, the noise envelope should ensure that noise reduces as capacity grows, at a pace that achieves a genuine sharing of the benefits of growth between industry and communities. In addition, the noise envelope should cover all periods of the year and reflect a best-case fleet transition that incentivises airlines to introduce quieter aircraft quickly. The noise envelope should be based on a suite of metrics and limits to be agreed with all stakeholders, not a single average noise metric. New noise envelope review, compliance and breach arrangements should be developed and agreed.
5. In compliance with the Airports National Policy Statement (ANPS, 2018) there should be a ban on night flights as a condition to any approval of the DCO.

## 10.2 Government Policy

### 10.2.1 Noise limits

6. GACC comment below on government policy in relation to the levels at which aircraft noise has community effects, the extent of those effects, and GAL's use of those limits.

### 10.2.2 Significant Observed Adverse Effects Level (SOAEL)

7. The ANPS says (paragraph 5.68) that development consent should not be granted unless the Secretary of State is satisfied that a proposed airport development avoids significant adverse impacts on health and quality of life from noise, within the context of Government policy on sustainable development.

8. GAL's Environment Statement (APP-039, paragraph 14.2.53) states that, "Government guidance, as summarised above, does not explicitly define SOAEL for aviation noise". GAL argues, by reference to planning precedents, that SOAEL is 63 dB LAeq, 16 hour. GACC does not agree with this view.

9. The Noise Policy Statement for England says that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations and consequently that SOAEL is likely to be different for different noise sources, for different receptors and at different times.

10. It is therefore necessary to consider what aviation policy says about the level at which significant adverse effects occur in relation to aviation noise. The Aviation Policy Framework says (paragraph 3.17) "We will continue to treat the 57dB LAeq 16 hour contour as the average level of daytime aircraft noise marking the approximate onset of significant community annoyance" (emphasis added). As far as GACC is aware this is the only reference to significant adverse effects levels in government aviation noise policy.

**11. The 57dB LAeq 16 hour contour should therefore be regarded as the level from which significant adverse effects occur (i.e.SOAEL) and accordingly, in accordance with the ANPS, development consent should not be granted unless effects above that level are avoided.**

12. GACC note that some past planning cases have determined aviation SOAEL to be 63 dB LAeq, 16 hour but consider that this view is not properly rooted in policy.

13. GACC note with concern the fact that the Applicant has failed to reference in its ES the APF policy on the level at which significant impacts occur.

### **10.2.3 Lowest Observed Adverse Effects Level (LOAEL)**

14. The Consultation Response on UK Airspace Policy: A Framework for Balanced Decisions on the Design and Use of Airspace, October 2017, (Consultation Response) sets LOAELs for aircraft noise at 51 dB LAeq 16 hour for daytime, and 45 dB LAeq, 8 hour for night-time.

15. GAL asserts that by using these LOAEL metrics it will have ensured that the total adverse air noise effects on people arising from the proposed development have been

assessed. It justifies this view by reference to the comment in the Consultation Response that *“These metrics [LOAEL] will ensure that the total adverse effects on people can be assessed and airspace options compared.”* GACC does not agree with GAL’s interpretation of this comment.

16. It is widely acknowledged in UK government aviation policy documents and consultations, and in research, that some people living in areas outside LOAEL contours are adversely impacted by aviation noise. The 2014 Survey of Noise Attitudes (SONA) shows that some 7% of people were highly annoyed by aircraft noise at levels below 51 dB LAeq 16 hour.

17. In addition, the World Health Organisation’s strong recommendations, following a comprehensive review of the scientific evidence, is that noise exposure averaged across the day, evening and night, should be reduced to below 45 dB Lden, as aircraft noise above this level is associated with adverse health effects, and that night noise exposure should be reduced to below 40 dB Lnight, as aircraft noise above this level is associated with adverse effects on sleep.

18. At Gatwick specifically there is clear evidence from complaint data that many people living in areas outside LOAEL contours regard themselves as being significantly adversely impacted. Virtually all campaign groups set up around Gatwick since 2014 have been based in areas outside LOAEL contours.

19. More broadly GACC does not believe that the LOAEL levels the government has set have been sufficiently robustly derived to be used as the exclusive measure of air noise impacts in a planning process and we urge the Authority to take account of wider evidence, as it is entitled to do.

20. The LOAEL levels derive from SONA. SONA is both now old and its conclusions are subject to significant doubt particularly in circumstances where noise is increasing or changing as it would if Gatwick was allowed to expand. Amongst other things SONA did not survey people in areas below 51dB LAeq. It therefore did not generate any data on levels of annoyance in populations outside LOAEL. Crucially, it also did not assess attitudes to aircraft noise in areas in which there had been change or expansion.

21. There is wide and authoritative acceptance that LOAEL metrics are not reliable measures of annoyance in the circumstances in which GAL has used them, i.e. in support of an application for expansion. The Independent Commission on Civil Aviation Noise (ICCAN) stated that SONA was not designed to consider the change in noise attitudes caused by an airport undergoing a period of volatility in its operation, such as expansion.

The International Civil Aviation Organisation (ICAO) is clear that exposure-response relationships are not applicable to assess the effects of a change in the noise climate, for instance where a new runway is opened, and that common noise exposure variables (such as Leq) only account for about one third of community impacts.

22. For all these reasons it is clear that aircraft noise below LOAEL has adverse impacts on large numbers of people which should be taken into account in planning assessments. By excluding these people, GAL has materially understated the effects of aircraft noise. GACC notes that the relevant representation from the UK Health Security Agency (UKHSA) made clear that many people in areas outside LOAEL contours are adversely affected by aircraft noise, and particularly highlighted vulnerable subgroups, including those that are highly noise sensitive.

23. GACC therefore propose:

- ! First that GAL should be asked to report and cost noise impacts using the limits strongly recommended by the World Health Organisation in 2018, being 45 dB Lden across the full day and 40 dB Lnight, as aircraft noise above this level is associated with adverse health effects and adverse effects on sleep. Although these targets have not yet been adopted by the UK government, they are likely to provide a more accurate indication of noise impacts than LOAEL.
- ! Secondly that the ExA asks the CAA to advise whether the ongoing Aircraft Noise Attitudes Survey (ANAS) suggests any change in attitudes to aircraft noise. The ANAS is being conducted in two waves the first of which was undertaken in September 2023. GACC understands there were over 3,000 responses in the Gatwick area. The CAA therefore now has the data from that survey wave and has had time to analyse it. It would be unfortunate if data that the CAA and government possesses was not made available to the Authority so it could be properly taken into account.

## 10.3 Noise Envelope

### 10.3.1 Noise envelope consultation

- 24. The ANPS requires noise envelopes to be “*defined in consultation with local communities*”.
- 25. The CAA’s guidance on noise envelopes, CAP 1129, states that “... *it is essential that full agreement is achieved between all stakeholders on the envelope’s criteria, limit values and means of implementation and enforcement*”.
- 26. Although GAL consulted and engaged on its noise envelope proposals its process did not meet either of those tests.



27. Community groups repeatedly requested changes in Gatwick's noise envelope engagement process in order to align it with CAA guidance and the ANPS. This includes asking for:
- ! The terms of reference to be changed to comply with CAP 1129;
  - ! The process to be independently chaired;
  - ! Additional time to allow issues to be explored in necessary detail; and
  - ! Independent technical advisory support.
- GAL has refused each of these requests.
28. Community groups also requested additional data and analysis that was essential to effective noise envelope engagement and which only Gatwick was able to provide. This was also refused by GAL. GACC made clear that the lack of additional data and analysis precluded informed engagement and meant that GAL's process would not be able to generate policy-compliant outputs.
29. Finally, Gatwick rejected the overwhelming majority of comments on its noise envelope proposals. It also rejected most of our comments on its Noise Envelope Group Output Report, which does not reflect community group views.
30. GACC notes that there were nearly 6,000 comments on noise in response to the Applicant's 2021 consultation and that less than 10% of respondents supported its noise envelope proposals. Despite this overwhelming opposition the noise envelope presented to the Authority is in all material respects the same as the one proposed in the 2021 consultation.
31. **For the reasons above GAL has failed to engaged on its noise envelope proposals in a meaningful or policy compliant way. GAL should be required to engage properly, under independent chairmanship, to develop new noise envelope proposals. GACC notes that the UK Health Security Agency also encourages GAL to continue engaging with local stakeholders to define a noise envelope that best meets their needs.**

### 10.3.2 Non-compliance with policy

32. The Aviation Policy Framework (APF) states that, "*As a general principle, the Government therefore expects that future growth in aviation should ensure that benefits are shared between the aviation industry and local communities. This means that the industry must continue to reduce and mitigate noise as airport capacity grows.*"

33. GAL contends that these policy principles were removed by the 2023 Overarching Aviation Noise Policy. GACC does not agree. The new Overarching Policy clearly replaces the overall objective on noise set out in the APF. However, it does not, in our view, replace the policy principles set out above. In the APF the government's noise objective and the policy principles are stated separately. The latter can best be seen as providing guidance on the meaning and practical application of the former. GAC believes the same applies now, with the principles providing guidance on the application of the new overarching policy. GACC notes that the Government has not suggested removal of the policy principles in any consultation and that the announcement of the new Overarching Policy did not state or imply that the principles had been removed.
34. In addition, the ANPS says that noise envelopes must "... achieve a balance between growth and noise reduction" and states that, "*The Airports NPS must be used as the primary policy on noise when considering the Heathrow Northwest Runway scheme, and has primacy over other wider noise policy sources*".
35. GAL's noise envelope proposals do not achieve the APF policy principles or achieve a balance between growth and noise reduction.
36. In the first noise envelope period the benefits of growth would accrue almost entirely to the industry, which would benefit from a 62% increase in passenger capacity while communities suffer substantial increases in noise.
37. In the second noise envelope period the noise impacts on communities would continue to be substantially greater than in 2019 once account was taken of the frequency of aircraft, a key measure of community annoyance. Thereafter, the proposed review process would allow noise to increase above the 2019 base year level on any measure.
38. Rather than the airport reducing noise as capacity grows, noise would increase very substantially and potentially indefinitely. And rather than the benefits of growth being shared, benefits would flow almost entirely to the industry.
39. The APF also requires noise envelopes to give communities certainty about future levels of noise. The Applicant's proposals do not do so. There are no restrictions on noise in the winter period and future noise envelope reviews could increase noise without limit.
40. Policy additionally requires noise envelopes to incentivise airlines to introduce the quietest suitable aircraft as quickly as reasonably practicable. GAL has assumed a slow transition from current to less noisy aircraft in its noise envelope proposals.

This would remove any incentive for airlines to introduce quieter aircraft at Gatwick, and might motivate them to do so at other airports first.

41. **New noise envelope proposals must comply with policy. Specifically, noise should reduce as capacity grows, at a pace that achieves a genuine sharing of the benefits of growth between industry and communities. New proposals should cover all periods of the year and reflect a best-case fleet transition that incentivises airlines to introduce quieter aircraft quickly.**

### 10.3.3 Metrics

42. GAL's proposed noise envelope uses a single, average noise, metric, Leq. It is widely accepted that Leq does not portray aircraft noise as experienced by communities, and all relevant policy and guidance advises against its use as a sole metric.
43. The APF says "*... we recommend that average noise contours should not be the only measure used when airports seek to explain how locations under flight paths are affected by aircraft noise. Instead the Government encourages airport operators to use alternative measures, which better reflect how aircraft noise is experienced in different localities, developing these measures in consultation with their consultative committee and local communities. The objective should be to ensure a better understanding of noise impacts and to inform the development of targeted noise mitigation measures*".
44. The CAA's noise envelope guidance, CAP 1129, recommends using a "*combination of parameters*" and states that "*where unilateral agreement cannot be achieved using standard metrics, consideration should be given to designing envelopes using other metrics provided that they are scientifically valid and robust*".
45. The ANPS requires noise envelopes to be tailored to local priorities and to be defined in consultation with local communities.
46. GAL's proposed noise envelope is based solely on Leq metrics and therefore does not meet any of these tests.
47. GACC notes GAL's assertion that use of Leq is supported by SONA but do not believe the evidence supports that claim. ICCAN stated that SoNA was not designed to consider the change in noise attitudes caused by an airport undergoing a period of volatility in its operation, such as expansion. ICAO is clear that exposure-response relationships are not applicable to assess the effects of a change in the noise climate, for instance where a new runway is opened and that common noise exposure variables (such as Leq) only account for about one third of community impacts. It is GACC's view that SoNA provides no evidence that Leq is a reliable

indicator of community impact over a period in which an airport is growing in the way the Applicant proposes.

48. GAL's proposal to report secondary metrics is irrelevant because no limits would be set for those metrics and they would impose no obligations or noise limits on the airport.
49. **Revised noise envelope proposals should include a suite of metrics and limits to be agreed with all stakeholders.**

#### 10.3.4 Noise envelope reviews

50. GAL has proposed noise envelope review, compliance and breach arrangements that are wholly one sided and do not comply with policy. **New review, compliance and breach arrangements should be developed and agreed.**

#### 10.3.5 Noise objective

51. GACC does not support the regulation 598 noise objective that GAL has proposed, because it selectively omits key elements of government policy. **The objective should be amended to refer to and reflect all relevant government policy.**

### 10.4 Night Flights

#### 10.4.1 Night flight ban

52. The ANPS requires a ban on scheduled night flights between 11pm and 7am. That requirement clearly applies to any Heathrow third runway project. However, the ANPS is also clearly stated to be an important and relevant consideration for applications for any airport nationally significant infrastructure project in the South East of England, not just Heathrow.
53. GAL has not proposed a ban on night flights or made any other night flight commitment other than the summer night noise envelope, which provides headroom for additional night flights in the summer period and offers no protection in the winter period. It has instead assumed that government night flight restrictions will limit growth in night flights, but made no commitment to limit the number of night flights it might seek in the future. In fact, GAL envisages growth in night flight numbers over the full eight-hour night period.

- 54 By making specific reference to a night flight ban in the ANPS the Government has made clear that relying solely on future government night flight restrictions is not a sufficient measure and does not provide sufficient community protection where an airport is seeking consent for major expansion.
- 55 **The ExA should therefore, in GACC's view, advise that there should be a ban on night flights as a condition to any approval of the DCO. In addition, the ExA should require that a comprehensive package of measures is put in place to incentivise the use of the quietest aircraft at night outside the hours of a ban, as also required by the ANPS.**